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Agricultural Land Utilization for Beef Cattle Business Development in Kediri City

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Abstract— *This study aims to analyze the changes and potential of agricultural land within a period of 5 years to develop a beef cattle business in the Kediri City using the concept of urban agriculture which is adapted to local regulations based on land mapping and baseline scenarios. The results of this study were changed in the function of agricultural land in 2014 and 2019 due to the addition of dry land area and reduction of paddy fields based on the results of overlayed mapping of agricultural land in 2014 and 2019. In this land suitability mapping, Kediri City was very suitable for rice fields and dry fields and deserves to be developed except in the area around the mountains in Mojoroto Sub-District. The land carrying capacity of rice straw and corn straw were very low at the assumptions of taking 20%, 35%, and 50% and does not meet the needs of beef cattle feed with the overall carrying capacity index criterion value was < 1. Utilization of agricultural land for beef cattle business development results in perceptions of feed processing equipment, business costs, economy, rat pests, waste products, laws and regulations, urban forests, business permits, other industries, food security, laboratories, agricultural land, employment opportunities, animal feed, development, government, protection, farmers and breeders, beef cattle farm, and farm pollution.*

Keywords— *Agricultural Land, Animal Feed, Mapping, Land Carrying Capacity, Carrying Capacity Index, Perception.*

I. INTRODUCTION

The high population rate in urban areas causes various kinds of environmental problems, especially the agricultural environment, ranging from land conversion to environmental quality degradation due to pollution and waste. Land is a strategic natural resource for development where almost all physical development sectors require land, such as the agriculture, forestry, housing and other sectors, as well as the largest producer of food needed by humans and the producer of agricultural waste as forage for livestock that needs to be available protection from government regulations and policies. This can be improved by implementing urban farming.

Urban farming is an activity oriented towards the growth, processing, and distribution of food and other products through intensive cultivation of crops and livestock in urban areas and the reuse of natural resources and urban waste to obtain a variety of crops and livestock (Food and Agriculture Organization, 2008). Urban farming can be done by means of an integrated urban farming system that integrates agriculture and livestock in urban areas whose results can be optimized as household food production (Agus, 2020). This also requires land use management so that the integration of agricultural and animal husbandry land can run smoothly, land use management is very important because of its important role in human development and social welfare (Najmuddin, Deng, and Siqi, 2017).

Agricultural land changes data from 2013-2015, especially on agricultural/animal husbandry lands in East Java, has decreased. In 2013 the area of agricultural land in East Java was 1,102,000 ha, then in 2014 it decreased by 1,101,000 ha and in 2015 it decreased by 1,091,000 ha (Central Statistics Agency, 2016). In 2018 the land area was 7.1 million ha, a decrease compared to 2017 which was still 7.75 million ha. This is due to conversions and changes in the function of agricultural land that occur every year in various regions in Indonesia, for example on agricultural land in Kediri City.

Land conversion is also due to Indonesia's agricultural-based potential, with abundant natural resources, encouraging certain parties to gain profits by converting agricultural land into tourism facilities (Ante, Benu, and Moniaga, 2016). Regulations from the central or local governments cannot overcome or prevent the reduction of agricultural land in each region in Indonesia because the taxes generated by agricultural land are very low compared to residential and industrial taxes.

Agricultural land does not only produce food, but animal feed is also produced from agricultural land. Animal feed can also be optimized for planting, growth, and development by using urban agriculture in utilizing land in urban areas. The area of agricultural land really determines how much rice straw and corn straw are produced as beef cattle feed.

The Central Statistics Agency of Kediri City (2019) said that agricultural land in Kediri City in 2018 was an area of 1,854 ha of paddy fields, 545 ha of dry land/garden, 2 ha of fields/huma, 1,746 ha of rice harvested area and corn harvest is 972.6 ha, while the agricultural production is rice production of 16,659 tons and corn production of 972.60 tons. In terms of quantity, on average every 1 kg of rice produces about 1 to 1.5 kg of straw (Situmeang, in Purwandaru, 2013), while the Department of Agriculture (2003) adds that the production of rice straw in one hectare of rice fields each time is able to produce about 10 – 12 tons of straw (fresh weight at harvest) or about 5 – 6 tons of straw (dry weight), although it varies depending on the location, type of rice plant variety, cutting method (cutting height) and cutting time, as in the Sintanur variety with cutting height 8 cm of soil can produce 8 – 10 tons of fresh straw or 4-5 tons of dry straw per ha.

Urban farming can be formed in one area if the area has the potential to be used as a new area that can form a certain center such as a center or livestock area. According to Primasworo and

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Widyastuti (2018), a livestock area is an area specifically used for livestock activities or integrated as a component of farming (food crops, plantations, horticulture, or fisheries) and integrated as a component of certain ecosystems (protected forests, nature reserves) which in its development must pay attention to the optimization of local resources and development policy strategies in each region.

If it is seen from the Regional Regulation on the Regional Spatial Planning (RSP) of Kediri City, which is stated in Article 52 concerning Livestock Areas, it is not in accordance with the fact that there has not been a beef cattle breeding area in the Pesantren Sub-District which has been stated in the Regional Regulation of the Kediri City RSP. The strategic plan for the future is to unite and create a beef cattle business area in the Pesantren Sub-District which is adjusted to the Kediri City RSP Regional Regulation regarding Agricultural and Livestock Areas.

The success or failure of the strategic plan for beef cattle business development also looks at the condition of agricultural land in the Pesantren Sub-District, such as whether or not there is a change in land use, land carrying capacity, water conditions, and others. This is done by land mapping, which is to determine the existence of new strategies related to agricultural land and livestock, both in terms of paddy fields, land carrying capacity, livestock locations, agricultural conditions, as well as livestock socio-economic strategies by making a digital map.

The relationship between urban agriculture, land mapping, and regional regulations for Sustainable Agriculture Food Land (SAFL) and RSP of Kediri City is very useful land mapping to see changes that have occurred in agricultural land in Kediri City since 5 years ago where the remaining agricultural land in Kediri City is protected by the SAFL regulation on the protection of 500 ha of food agricultural land which will be used as urban agriculture by integrating and increasing intensively agricultural and livestock land in urban areas by creating an area or livestock center in Kediri City as stated in the RSP regulation using the urban farming concept in the future.

The reason why it is important to take this research is to utilize this agricultural land by observing and assessing the condition of agricultural land in Kediri City both digitally and non-digitally which is useful for creating urban agriculture and livestock areas in the Kediri City in the future.

II. Material and Methods

The location that was carried out as a research area was Kediri City, to be precise in 3 sub-districts namely Pesantren Sub-District, Kota Sub-District, and Mojoroto Sub-District. This study uses a non-experimental research method whose research form is descriptive research (Saebani and Sutisna, 2018) and also uses a mixed approach method consisting of a qualitative and in-depth approach to the social situation under study (Sugiyono, 2019) and a quantitative approach method that finds and develops the condition of agricultural land in the Kediri City. The research method is divided into 3, namely land research methods, beef cattle feed research methods, and beef cattle breeders research methods.

1. Agricultural Land Mapping Research Methods

This research method uses a qualitative approach method which has to look at the changes that occur in agricultural land in the Kediri City widely. In addition, it can also be done using the Google Earth and Google Map applications to view and get the results of the digital data track record of changes in agricultural land in the Kediri City within a period of 5 years.

The data collection procedure for the formulation of the problem in this study is divided into two steps, (1) making a land use map and (2) making a map of land units in Kediri City.

Making land use maps of Kediri City will be continued with making maps of land units of Kediri City obtained from overlapping operations called overlays. Rachmah, Rengkung, and Lahamendu (2018) says that the overlay method is an information system in the form of graphics that is formed from combining various individual maps (having specific information/databases) which is carried out with at least 2 different types of maps technically, it is said that custom polygons are formed of 2 types overlaid map.

2. Land Carrying Capacity Research Method

This research method uses a qualitative approach method by means of surveys through observation using questionnaires distributed to farmers with open-ended or unstructured questions which are used to obtain more in-depth initial information about various issues or problems experienced by farmers. breeders or farmers related to animal feed in Kediri City (Sugiyono, 2019). The questionnaire data obtained is qualitative data, so the data is converted into quantitative data by measuring the production assumptions of rice straw, corn straw, and elephant grass, the carrying capacity of the land, and the index of the carrying capacity of the land.

3. Beef Cattle Breeder's Perception Research Method

This research method is an integral part of research methods on beef cattle feed, namely using a qualitative approach method by means of surveys through observation using questionnaires distributed to farmers with open or unstructured questions which is useful for obtaining more in-depth information about their perceptions of changes in agricultural land and local regulations related to agricultural land protection and food security in Kediri City.

Data collection on the condition of beef cattle farmers in this study can be done by:

- Observation: condition, characteristics and profile of the farmer's business being carried out.
- Interview: this was done to beef cattle farmers in Kediri City.

The number of 1,365 beef cattle breeders in Kediri City was taken by 9 people consisting of 8 beef cattle breeders who really experienced and felt the impact of changes in agricultural land on beef cattle and also knew about the local regulations made by the government. Then, 1 person from the Food Security and Agriculture Department of Kediri City to get answers related to the impact of changes in agricultural land on animal husbandry in the Kediri City and also related to the regional regulations that have been made whether it will have a positive impact on farmers/breeders.

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III. Analysis Data

1. *Agricultural Land Mapping Research Analysis*

This land mapping data analysis was carried out using an application called GIS (Geographic Information System). The parameters analyzed in this study are Baseline Scenario, Land Carrying Capacity, Strategic Plan for beef cattle business development and predictions of changes in agricultural land in Kediri City in the future supported by the results of questionnaires given to farmers in Kediri City.

2. *Land Carrying Capacity Research Analysis*

The data analysis used in answering the problem formulation in this method:

$$\text{Forage Feed Carrying Capacity (AU)} = \frac{\text{Dry Material Production } \left(\frac{\text{kg}}{\text{yr}}\right)}{\text{Dry Material Needs for Adult Cows } \left(\frac{\text{kg}}{\text{yr}}\right)}$$

Calculation of dry matter requirement for beef cattle can be calculated as follows: Dry matter requirement for adult cattle (kg) = total body weight of adult cattle (kg) x consumption of forage BK (1 – 3%).

3. *Beef Cattle Breeder's Perception Research Analysis*

Analysis of the data used in this study using data analysis model Miles and Huberman. Activities in qualitative data analysis are carried out interactively and take place continuously until complete, so that the data is saturated (Miles and Huberman, 1992) by using a qualitative application called NVivo version 12.2. Activities in this data analysis are data collection, data reduction, data display, and conclusion drawing/verification which can be presented in Figure 1 below:

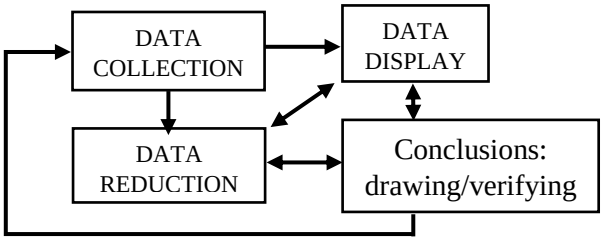

Fig. 1. Components in Data Analysis (Interactive Model) in Qualitative Research

IV. Results

1. *Kediri City Profile*

Kediri City is one of the medium cities in East Java Province with a population of 285,582 people. The Kediri City is located at 07º45` – 07º55` South Latitude and 111º05` - 112º3` East Longitude with its area divided by the Brantas River into 2 parts, namely the east is a low-lying area are the Kota Sub-District and Pesantren Sub-District and west area is Mojoroto Sub-District which is a highland area with less fertile land. The boundaries of the Kediri City can be seen and shown on Figure 2, Figure 3 and Figure 4 below:

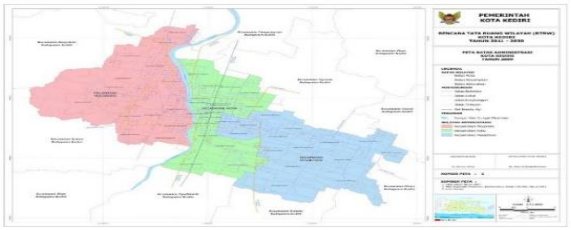

Fig. 2. Kediri city administration map

Fig. 3. Kediri City Map via Google Earth

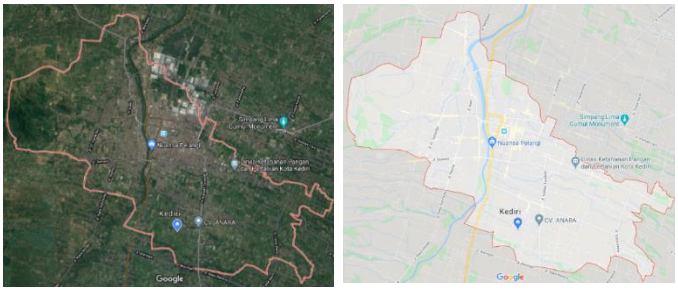

Fig. 4. Kediri City Map via Google Map and Google Map Satellite

2. *Agricultural Land in Kediri City*

There are 2 types of agricultural land in Kediri City, namely wetland agricultural land is agricultural land that is still productive for planting food crops to produce crop residues of food crops that are used as animal feed such as rice straw and corn straw and dryland agricultural is a non-productive paddy field which is used as vacant land (moor) which is useful for taking field grass as animal feed or even carrying out construction such as housing, shops, and others.

The total area of harvested land and harvested production from rice field land use can be presented in table 1 below:

TABLE 1. Area for Harvesting and Production of Rice Fields in Kediri City

Land Use	Harvested Area (ha)			Production (kw)		
	2014	2015	2019	2014	2015	2019
Paddy	1,707	1,977	1,488	97,897	127,292	76,959.36
Corn	883	1,066	911	56,909	73,458	63,737.78
Other Agricultural Crops	65	85	21.3	5,675	6,985	132.94
Total	2,655	3,128	2,612	160,481	207,735	140,830.08

Based on the results of table 5 above, the harvested area of paddy, corn and other agricultural crops (cassava, sweet potatoes, peanuts, and soybeans) from 2014 to 2015 each increased by 270 ha in paddy fields, 183 ha on corn fields, and 20 ha on rice fields for other agricultural crops. This is due to

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the use of dryland agricultural which is again used as wetland agricultural (rice fields). Meanwhile, in 2019 there was a decrease in the harvested area of paddy, corn, and other agricultural crops due to the large number of rice fields being used for development such as housing construction, city parks, shops, non-productive rice fields, and others.

3. Agricultural Land Mapping in the Kediri City

3.1. Land Use Mapping in Kediri City

Land use mapping serves to identify, understand and observe land use changes in the Kediri City in 2014 and 2019. Land use is useful in the development and use of land or soil in Kediri City to become a new sector either the agricultural sector, the livestock sector as well as the industrial sector, government, and services. Land use mapping in 2014 and 2019 can be presented in Figure 5 and Figure 6 below:

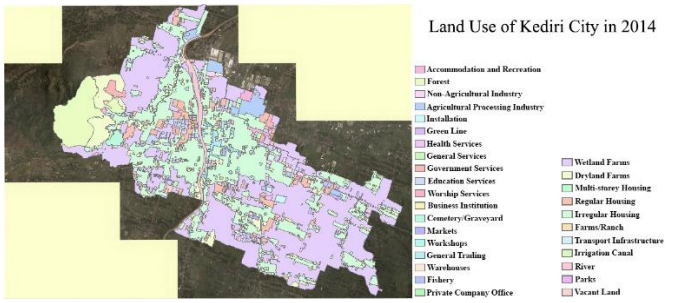

Fig. 5. Land Use of Kediri City in 2014

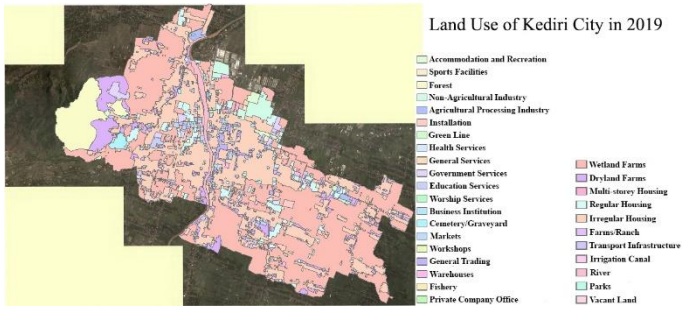

Fig. 6. Land Use of Kediri City in 2019

Based on Figures 5 and 6 above, there was a change in land use in the Kediri City in 2019 with the addition of one new sector, namely the existence of sports facilities where this was still not available in 2014. The land use changes that are not used or maintained and it can also from rice fields, dryland agriculture or vacant land. This land use change in Kediri City occurred in 5 years from 2014 to 2019. An explanation of the results of the overlay and the areas that have changed the land use Kediri City can be presented in Figure 7:

The results of the overlay mapping of land use changes in Figure 7, the uses of land use in 2014 in Kediri City there were many land use changes in 2019 such as wetland agriculture (rice fields) in 2014 there was no change in land use, within 5 years to be precise in 2019 there was a change in land use in rice fields which became educational services, worship services, etc. and dryland agriculture (moor) there was also no change in land use in 2014, but in 2019 changed to irregular housing. This land use change is usually due to the Kediri City government fulfilling the people of Kediri City needs or there are even investors who invest in Kediri City by build new sectors or expanding existing sectors.

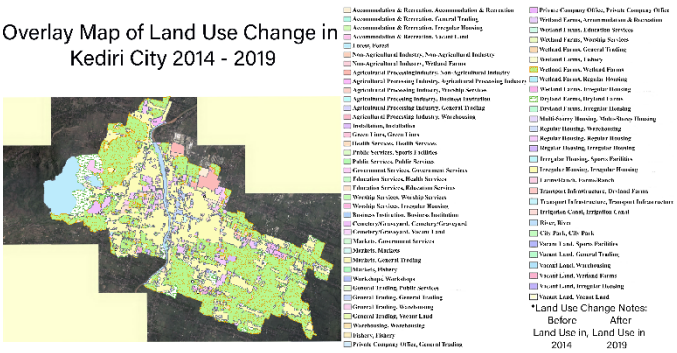

Fig. 7. Overlay Map of Land Use Change in Kediri City 2014 – 2019

3.2. Wetland Agricultural Land Mapping

The retrieval of maps of wetland agriculture from 2014 and 2019 serves to see how many changes have occurred to paddy fields in Kediri City which have an impact on crop production and the remaining yields of rice and corn which are used as beef cattle feed in Kediri City. The data on the area of paddy fields and the resulting production in table 1 which is processed using the Geographic Information System application can be presented in Figure 8:

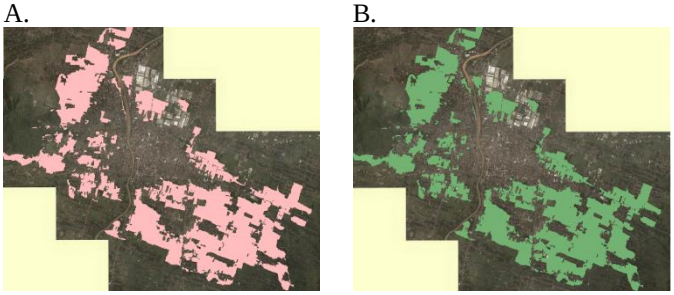

Fig. 8. A. Land Mapping of Wetland Agricultural in 2014 (left); B. Land Mapping of Wetland Agricultural in 2019 (right) Kediri City

Wetland agriculture (rice fields) in 2014 in Kediri City had a total land area of 2,655 ha with crop yields of 160,481 kw or 16,048.1 tons, and rice fields in 2019 had a total land area of 2,612 ha with crop yields of 140,830.08 kw or 14,083,008 tons. The results of the overlay mapping of rice fields between 2014 and 2019 can be presented in Figure 9:

Fig. 9. Land Mapping Overlay of Rice Fields Between 2014 and 2019

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Based on the overlay results from the mapping of rice fields in Figure 9 above, the pink color in the mapping of rice fields which in 2014 still exist in the rice fields, but on the map of agricultural land in 2019, rice fields are marked with pink color on the 2014 land map changed. Changes or not the wetland agriculture is due to changes in the function of rice fields so that changes in land use also change which at first the land use was used as agricultural land, then turned into housing, shops, warehousing, and others.

3.3. Dryland Agriculture Land Mapping

Not only wetland agriculture that can be used to get animal feed, but non-productive agricultural land such as dryland/vacant land is also used to get animal feed, for example grass (field grass and elephant grass) which is intentionally planted by farmers/breeders. The area of dryland in each sub-district in 2014 and 2019 is presented in table 2 below:

TABLE 2. Total Area of Dryland Agriculture in Kediri City

No	Sub-district	Area of Dryland Agriculture/Moor (ha)	
		2014	2019
1	Mojoroto	190.22	216
2	Kota	61.93	55
3	Pesantren	282.15	274
Total		534.30	545

Based on table 2 above, the increase in the area of dry land is due to improper use of land and productive rice fields become non-productive rice fields for planting grass (elephant grass and field grass). The area that has the most dryland agricultural is Mojoroto Sub-District which is a dry area and the western part is bordered by 2 mountains, namely Mount Klotok and Mount Maskumambang and Pesantren Sub-District is a wet area that has springs and there are also a lot of rice fields (Central Statistics Agency of Kediri City, 2019). Land mapping of dryland agricultural can be presented in Figure 10:

A. B.

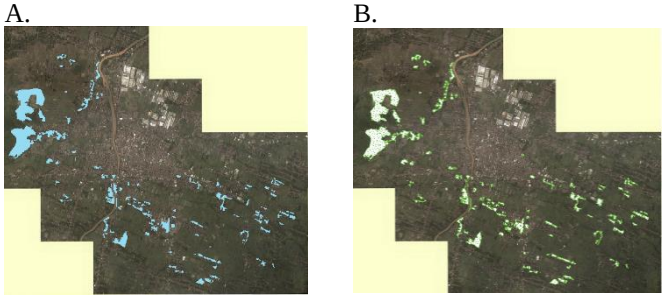

Fig. 10. A. Land Mapping of Dryland Agricultural in 2014 (left); B. Land Mapping of Dryland Agricultural in 2019 (right) Kediri City

Based on Figure 10 above, the medium blue color is the location of the distribution of dryland agricultural in Kediri City in 2014. The white color with green lines and dots is the location of the distribution of dryland agricultural in Kediri City in 2019. There is an increase in the area of dry land in 2019 which located in the Mojoroto Sub-District. The addition of dryland area can be seen in Figure 11 as a result of the overlay between the land mapping of dryland agricultural in 2014 and 2019:

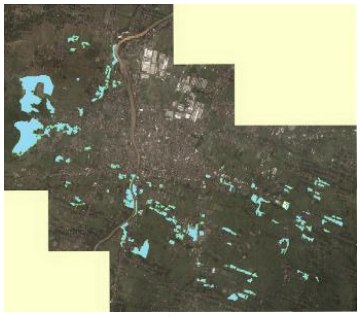

Fig. 11. Land Mapping Overlay of Dryland Agricultural 2014 and 2019

3.4. Land Suitability in Kediri City

3.4.1. Slope Level and Slope Type

Land suitability in Kediri City consists of slope level, slope type, soil type, and climate which are included in environmental/ecological factors and land suitability that has been mapped by the Regional Development Planning Agency (RDPA) of Kediri City. The area of the slope level in Kediri City can be presented in table 3:

TABLE 3. Total Area of Slope Level in Kediri City

No	Sub-district	Total Area (m^2)	Slope Level	Slope Area (m^2)
1	Mojoroto	24,60	0 – 8%	1.64
			8 – 15%	8.2
			15 – 25%	6.56
			25 – 40 %	3.28
			> 40%	4.92
2	Kota	14,90	0 – 8%	1.354
			8 – 15%	10.836
			15 – 25%	2.71
3	Pesantren	23,90	8 – 15%	4.345
			15 – 25%	17.382
			25 – 40%	2.173

The land slope level is 8 – 15% consisting of the total area of Mojoroto Sub-District covering an area of 8.2 m^2, $\frac{8}{11}$ from the Kota Sub-District area of 10.836 m^2 and $\frac{2}{11}$ from the total area of the Pesantren Sub-District covering an area of 4,345 m^2. At a slope level of 15 – 25%, it is divided into Mojoroto Sub-District with an area of 6.56 m^2 or $\frac{4}{15}$ its area, Pesantren Sub-District with an area of 17.382 m^2 or $\frac{8}{11}$ its area, and Kota Sub-District with an area of 2.71 m^2 or $\frac{2}{11}$ from the area of Kota Sub-District. The slope level of 0 - 8% is found in the Mojoroto Sub-District area which is on the banks of the Brantas River with an area of 1.64 m2 or $\frac{1}{15}$ of the total area of Mojoroto Sub-District and its $\frac{1}{11}$ or 1,354 m2 is located on the banks of the Brantas River, Kota District. The slope level of 25-40% is located on the slopes of Mount Klotok and Mount Maskumambang, Mojoroto District, covering an area of 3.28 m2 or $\frac{2}{15}$ the area of Mojoroto District and $\frac{1}{11}$ or 2.173 m2 of area in Pesantren District. This 40% slope level is in the area of Mount Klotok, Mojoroto District, which has an area of 4.92 m2 or $\frac{3}{15}$ of the total area of Mojoroto Sub-District. To clarify the level of slope above can be seen in Figure 12 which is presented as follows:

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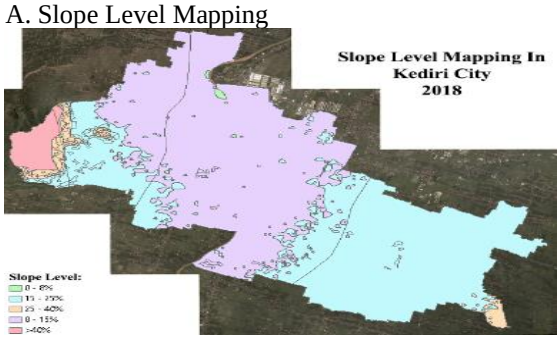
A. Slope Level Mapping



B. Slope Type Mapping

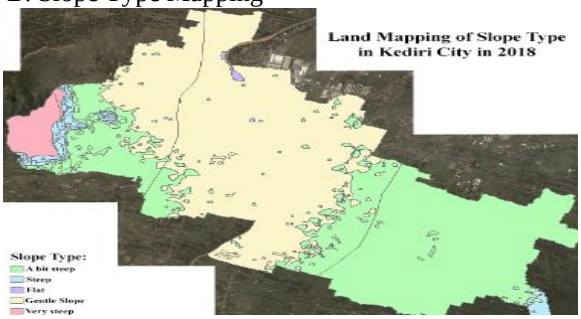


Fig. 12. A. Slope Level Mapping (left); B. Slope Type Mapping (right) in Kediri City

3.4.2. Kediri City Climate

The climate in this study is meant by rainfall which will determine whether suitable or not the production of livestock, the level of fertility in plants, soil fertility and moisture, and others. Based on rainfall data from the Central Statistics Agency of Kediri City (2020), rainfall in the Kediri City area has rainfall ranging from 1,671 mm per year in 2019 with an average rainfall for the 2016 – 2019 period of 2,128.25 mm where the highest rainfall is in 2016 of 3,456 mm per year and the lowest in 2018 was 1,409 mm per year.

3.4.3. Soil Type

Soil type is also an important factor for agricultural lands in all regions in Indonesia, especially in Kediri City, this is because soil type can affect whether or not the condition of the land, both wet and dry land agriculture, whether or not the absorption of water into the soil, is good or not. and mineral content contained in the soil that is useful for plants in paddy fields and dry land. The total area based on soil type in Kediri City can be presented in table 4:

TABLE 4. Total Area Based on Soil Type

No	Sub-district	Total Area (m^2)	Soil Type	Soil Type Area (m^2)
1	Mojoroto	24,60	1. Association of gray alluvial and gray-brown alluvial	12.30
			2. Alluvial	8.20
			3. Mediterranean reddish brown and lithosol	4.10
2	Kota	14,90	1. Association of gray alluvial and gray-brown alluvial	14.90
3	Pesantren	23,90	1. Association of gray alluvial and gray-brown alluvial	7.97
			2. Gray-brown regosol	15.93

Based on table 4, the Kediri City has 4 types of soil, namely alluvial soil, association gray alluvial and gray brown alluvial, reddish brown mediterranean and lithosol, and gray brown regosol. All areas in Kota Sub-district in Kediri City have gray alluvial and gray brown alluvial association soil types, then Mojoroto Sub-district has 3 types of soil, namely $\frac{1}{2}$ of the total land area adjacent to the Brantas River has an association of gray alluvial and gray brown alluvial soil type, $\frac{1}{3}$of the land area of the total area has alluvial soil type, and $\frac{1}{6}$ of the land area located in mountain areas has reddish brown mediterranean soil types and lithosols. In the Pesantren Sub-District area, there are 2 types of soil, namely $\frac{1}{3}$ of the total land area of the Pesantren Sub-district which has gray alluvial and gray brown alluvial association soil types and $\frac{2}{3}$ of the land area has gray brown regosol soil type. Based on the statement of the type of soil and its total area can be seen in the mapping image of soil types in the Kediri City which is presented in Figure 13:

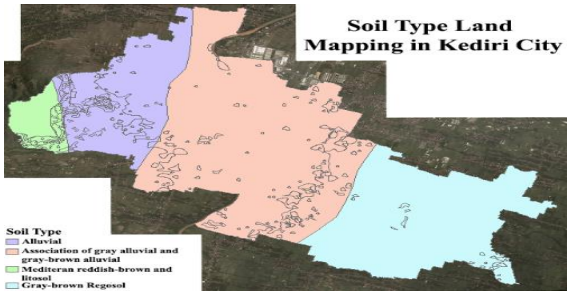


Fig. 13. Soil Type Land Mapping in Kediri City

3.4.4. Water Status in Kediri City

The status or condition of water in the Kediri City was not taken, due to the large number of employees working at home due to the corona virus (COVID-19) pandemic and also difficulty in obtaining permits and contact restrictions (social & physical distancing) to people around so as not to spread or contracting the corona virus. Most of the people of Kediri City, especially farmers and ranchers, use well water as the main water source that is used and utilized by them for daily life and for drinking water for their livestock. The use of water sources used by the people of Kediri City can be presented in Figure 14 below:

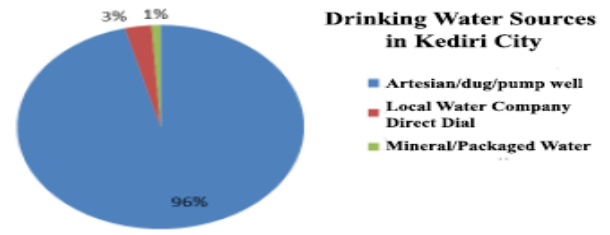


Fig. 14. Drinking Water Sources in Kediri City

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3.5. Omnibus Law Against Agriculture and Livestock in Kediri City

The Omnibus Law related to agriculture and animal husbandry starting from land and livestock cultivation systems, land protection, animal feed, etc. are regulated by the Central Government as in Article 8 paragraph 3 where the authority of the Central Government in spatial planning of national strategic areas includes:

a. Determination of national strategic areas
b. National strategic area spatial planning
c. Utilization of national strategic area space
d. Controlling national strategic area space use

According to Sukarman (2021), in the Job Creation Law, the government and companies have the authority to unilaterally determine the location of infrastructure development without the consent of the community. This is because Regional Governments such as governors and mayors/regents no longer stipulate spatial planning, and others as stated in Article 10 of the Omnibus Law which reads:

a. Regulating, fostering, and supervising the implementation of spatial planning in the provinces and districts/municipalities.
b. Implementation of provincial spatial planning.
c. Cooperation in spatial planning between provinces and facilities for cooperation in spatial planning between districts/cities.

In fact, the space for agricultural areas in Kediri City has not been formed and has even experienced a setback due to the conversion of land functions in Kediri City. The non-realization of a sustainable agricultural land policy will have three implications, namely the decline in productive land, interrupted farmer regeneration, and the occurrence of land conversion (Saifulloh, 2021).

Animal husbandry is also regulated by the Central Government both in terms of grazing areas, animal feed, business permits, and others. One example is found in Article 22 paragraph 2 and paragraph 4. Article 22 paragraph 2 states that the feed made must comply with the standards or terms and conditions of the manufacturing method that has been stipulated by Government Regulation, in Article 22 paragraph 4 which states that animal feed shall not or be prohibited from containing feed ingredients in the form of blood, meat, and bones as well as feed mixed with hormones or antibiotics. According to Saifulloh (2021), the conception of state control over land and other natural resources as well as arrangements regarding the guarantee of individual property rights and communal rights of indigenous peoples in the constitution.

4. Forage Feed for Beef Cattle in Kediri City

4.1. Rice Straw

This rice plant is a food crop that is often planted by farmers, especially farmers in Kediri City who produce rice as food and the rice straw is used as beef cattle feed in Kediri City. Rice production when viewed from the initial rice harvest and straw is presented in table 5 below.

Based on table 5, the production of rice in Kediri City at the beginning of the harvest is rice that has just been harvested and is weighed at 10,182.57 tons/year. While rice straw is the result of dry rice plant residues and can no longer be used by humans which is used as animal feed of 8,452.52 tons / year.

TABLE 5. Rice Production on 2018/2019 in Kediri City

Sub-District	Area of rice field (Ha)	Rice planting area (Ha)	Productivity (Ton/ Ha)	Production (ton)	
				Early Harvest	Rice Straw
Mojoroto	509	926	6.9	6,154.91	5,108.57
Kota	257	416	7.2	2,885.28	2,394.78
Pesantren	185	177	6.7	1,142.38	948.17

Not all rice straw is taken by farmers/breeders in Kediri City as beef cattle feed, because they prefer to burn straw as mulch on the ground. The assumption of taking rice straw by farmers/breeders in Kediri City can be presented in table 6 below:

TABLE 6. Assumption of Harvesting Rice Straw as Beef Cattle Feed

Sub-District	Rice Straw Production (ton)	Assumption of Rice Straw Harvesting		
		20%	35%	50%
Mojoroto	5,108.57	1,021.71	1,787.99	2,554.29
Kota	2,394.78	478.96	838.17	1,197.39
Pesantren	948.17	189.63	331.86	474.09
Total	8,451.52	1,690.30	2,958.02	4,225.77

Based on table 6 above, rice straw harvesting carried out by farmers/breeders in Kediri City is assumed to be 20%, 35%, and 50% respectively of the total production of rice straw produced in each sub-district in Kediri City. This is done because farmers/breeders often pile up and burn rice straw or use rice straw as mulch on their land. Farmers pile up and burn straw directly on paddy fields, although some farmers use straw as mulch (natural soil fertilizer), compost and animal feed (Tommy, Mukhlis, and Hidayat, 2014).

4.2. Corn Straw

Apart from rice, corn is also a food crop that is often planted by farmers in Kediri City as a food substitute for rice and also as an animal feed ingredient, either made as concentrate or used directly as corn straw. Corn production is the same as rice production which has 2 types of production which can be seen in table 7 below:

TABLE 7. Corn Production on 2018/2019 in Kediri City

Sub-District	Total Area (Ha)	Corn planting area (Ha)	Productivity (Ton/Ha)	Production (ton)	
				Early Harvest	Corn Straw
Mojoroto	509	515	8.0	3,968.80	1,547.83
Kota	257	112	8.2	884.69	345.03
Pesantren	185	371	7.9	2,823.34	1,101.10

Based on table 7 above, corn production in Kediri City from corn fields was obtained at 7,676.83 tons per year for early harvest corn and 2,993.96 tons per year for corn straw. The production of early harvested corn into corn straw in each sub-district has decreased by 39% where this corn plant has corn cobs, corn husks, leaves from corn plants and corn stalks, causing the shrinkage of this corn plant to be much higher. The assumption of corn straw harvesting can be seen in table 8 below:

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TABLE 8. Assumption of Harvesting Corn Straw as Beef Cattle Feed

Sub-District	Corn Straw Production (ton)	Assumption of Corn Straw Harvesting		
		20%	35%	50%
Mojoroto	1,547.83	309.57	541.74	773.92
Kota	345.03	69.01	120.76	172.52
Pesantren	1,101.10	220.22	385.39	550.55
Total	2,993.96	598.79	1,047.89	1,496.99

Corn straw harvesting assumption in table 8 above is the same as rice straw harvesting assumption which is respectively 20%, 35%, and 50% of the total production of corn straw without corn cobs in each sub-district in Kediri City. This assumption was made because farmers/breeders also piled and burned corn straw, and even used it as a natural fertilizer (mulch) in their paddy fields rather than as feed for their beef cattle. According to Adrinal, Saidi, and Gusmini (2012) regarding mulch, one of the advantages of giving mulch is that the addition of mulch that has undergone decomposition will contribute nutrients to the soil, especially potassium.

4.3. Elephant Grass

Elephant grass is often used by breeders/farmers in Kediri City, because this grass is easy to obtain and is also the main animal feed for their beef cattle. The estimation of elephant grass production on land in each sub-district in Kediri City on the area of the land with the amount of elephant grass taking which is often taken by breeders/farmers based on the results of interviews obtained can be seen in table 9 below:

TABLE 9. Elephant Grass Production Estimate

Sub-District	Elephant Grass					
	Land use	Total area	Planting area	Land ownership	Daily intake (kg)	Estimated Production (tons/yr)
Mojoroto	Forest	251.70 ha	62.925 ha	Government	40	906.12
Kota	Wetland	5,000 m^2	5,000 m^2	Farmer	100	126
Pesantren	Wetland	5,000 m^2	5,000 m^2	Farmer	350	36

Based on the results of table 9, the land for elephant grass has a $\frac{1}{4}$ ha area of the total urban forest area in Mojoroto Sub-District covering a 62,925ha areas and the estimated production is 906.12 tons/year. Meanwhile, in the Kota and Pesantren Sub-Districts, the elephant grass land is paddy field and is owned by the breeder himself with a total land area and planting area of 5,000 m^2 and the estimated production is 126 tons/year and 36 tons/year, respectively, with daily take of 100 kg/day and 350 kg/day. The average fresh forage production at a 20-day defoliation interval of 14.15 tons/ha has a higher tendency than the 40-day defoliation of 13.07 tons/ha. It is because there are different elephant grass varieties that are planted and used by farmers in Kediri City as an animal feed (Seseray, Saragih, and Katiop, 2012).

4.4. Land Carrying Capacity in Kediri City

The number of beef cattle greatly determines the amount of animal feed taken by breeders and farmers which is measured in terms of the carrying capacity of the land in Kediri City. Land carrying capacity itself is useful for measuring the ability of the feed capacity of wetland agriculture in Kediri City to be used as feed for beef cattle. Land carrying capacity in Kediri City based on animal unit (AU) can be seen in table 10 below:

TABLE 10. Land Carrying Capacity in Kediri City

Sub-District	Land Carrying Capacity (AU)							
	Rice (DM 1,5%)			Total	Corn (DM 1,5%)			Total
	20 %	35%	50%		20 %	35 %	50 %	
Mojoroto	582.17	1,018.80	1,455.44	3,056.41	176.39	308.68	440.98	926.05
Kota	272.91	477.59	682.27	1,432.77	39.32	68.81	98.30	206.43
Pesantren	108.05	189.09	270.14	567.28	125.48	219.59	313.70	658.77
Total (AU)	963.13	1,685.49	2,407.84	5,056.46	341.19	597.09	852.99	1,791.25

Based on table 10 above, land carrying capacity on the assumption of 20%, 35%, and 50% rice straw harvesting is the highest in Mojoroto Sub-District at 582.17 AU, 1,018.80 AU, and 1,455.44 AU. The lowest land carrying capacity in the Pesantren Sub-District was obtained by 108.05 AU, 189.09 AU, and 270.14 AU. On the harvesting assumption 20%, 35%, and 50% of corn straw, the highest was Mojoroto Sub-District with 176.39 AU, 308.68 AU, and 440.98 AU. The lowest land carrying capacity of corn straw was Kota Sub-District, each obtained as much as 39.32 AU, 68.81 AU, and 98.30 AU.

4.5. Land Carrying Capacity Index in Kediri City

The land carrying capacity is known further how the condition of wetland agriculture in Kediri City if it is adjusted to the existing criteria. The criteria for the condition of wetland agriculture are useful to see whether secure or not of wetland agriculture in Kediri City to support forage rice straw and corn straw in the future which can be seen using the Land Carrying Capacity Index in Kediri City in table 11 below:

TABLE 11. Land Carrying Capacity Index in Kediri City

Sub-District	Land Carrying Capacity Index					
	Rice (DM 1,5%)			Corn (DM 1,5%)		
	20%	35%	50%	20%	35%	50%
Mojoroto	0.605	1.058	1.511	0.183	0.320	0.458
Kota	1.620	2.836	4.051	0.233	0.409	0.584
Pesantren	0.060	0.104	0.149	0.069	0.121	0.173
Total	0.327	0.573	0.818	0.116	0.203	0.290

Based on table 11 above, it shows that the results of the land carrying capacity index, both rice fields and corn fields in Kediri City have a value of < 1 with very critical criteria from the total results of the calculation of the value of the land carrying capacity index, this is based on the theory of Ashari, et al (1995) which the "SAFLe" criteria has a carrying capacity index (IDD) > 2; IDD < 1.5 – 2 "vulnerable" criteria; IDD < 1 – 1.5 "critical" criteria and IDD < 1 indicates "very critical" criteria. In Kota sub-district, the index value of the carrying capacity of rice land with the criteria from vulnerable to SAFLe is the highest at values of 1,620, 2.836, and 4.051 respectively compared to other sub-districts, because the population of beef cattle in this sub-district is very small so that the need for dry matter for beef cattle sufficient. The high Food Crop Waste Carrying Capacity Index (FCWCCI) which has SAFLe criteria with values of 13.09, 7.10 and 10.96 is due to the population of ruminants in Talawaan

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District, North Minahasa Regency which so that the availability of nutrients exceeds the animal needs (Ismael, et al, 2018).

4.6. Farmers and the Food Security and Agriculture Department Perceptions

4.6.1. Feed Processing Equipment

The Food Security and Agriculture Department of Kediri City has provided feed processing tools such as choppers to breeders/farmers to make it easier to process forage feed efficiently and effectively in maintaining forage feed needs during the dry season. Farmers are able to process animal feed in a more efficient and sustainable way, can maintain self-sufficiency in animal feed during the dry season and can increase the productivity of their livestock products (Nisa, Aminudin, and Fahrudi, 2019).

Based on the findings in the field, only farmer groups managed by the department were given feed processing equipment and other breeders were not given due to operational cost constraints, lack of staff, etc., so that many farmers/breeders still use the conventional method of cutting forage feed using a sickle and drying under the sun. Small-scale farmers still use traditional cutting methods using sickles or other conventional farming tools and also use heating/drying methods in the sun (Yanuartono, et al, 2019).

4.6.2. Business costs

Most of the breeders/farmers have difficulty in controlling the business costs to maintain the beef cattle business and eventually the farmers become bankrupt. This is due to the high price of animal feed and the lack of agricultural land in Kediri City which has resulted in a decline in forage animal feed (grass and straw). A factor causing the high cost of feed because the land used is not large enough so that the supply of grass is very limited, even the season is very influential on the availability of unstable grass and this requires farmers to buy grass in another place (Candra and Anggriawan, 2020).

Happyana (2017) adds that the number of beef cattle ownership on a small scale with capital, skills and technology is still limited and traditionally managed, which has many weaknesses, including the utilization of production resources has not been maximized. In the end, the breeders/farmers in Kediri City carried out a strategy to save on animal feed costs such as planting grass on their agricultural land, adjusting the cost of feed expenditure, making and using alternative feeds such as bagasse and tofu, reducing the amount of forage feed, and taking available feed reserves.

4.6.3. Economy

Breeders/farmers have very high hopes for the government Kediri City so that the government will think about their circumstances and conditions and not displace their jobs which they have been working on for ± 10 years in Kediri City. The aspect of farmers' perceptions related to farmers' expectations of the business with the length of business of the breeder has a very real correlation or relationship than other socio-economic factors (age, education, etc.) (Muhammad, et al, 2014).

With the regional regulations made by the Food Security and Agriculture Department of Kediri City, many farmers and breeders hope that agricultural land can survive and be protected by the government so that they will continue to work in the future. In addition, the agency wants the socio-economic status of the farmers/breeders to be maintained and improved in order to create competitiveness in agricultural and livestock production, that to achieve competitiveness in Indonesian livestock production, it is necessary to empower farmers through farmer groups (Rusdiana and Soeharsono, 2019).

4.6.4. Rat Pest

The decreasing of agricultural land in Kediri City has caused the snake population also decrease, because the snake's habitat has been damaged due to the many developments in Kediri City and the rat population has increased in the last 2 years. Many farmers/breeders in Kediri City often use snakes which is the best way to control rat pests on their land, that one of the efforts in controlling rats without killing by hand is related to the balance of the ecosystem between prey and predators naturally (Isnani, 2016).

The current condition of agricultural land in Kediri City is worse than in previous years so that rats are rampant which makes it difficult for farmers/breeders to deal with it and causes damage to the rice on their land. The higher the rat population, the higher the possibility of damage intensity, where 94% of the intensity of damage to rice plants due to rat attacks is determined by the level of the rat population (Priyambodo and Hidayana, 2020).

4.6.5. Waste Products

Many agricultural lands have been converted to unproductive land or housing and buildings have been built, resulting in the production of agricultural waste in Kediri City, which in fact results from agricultural waste originating from the remaining production of rice and corn plants and also being used as animal feed. But farmers/breeders prefer to use field grass or elephant grass as animal feed, where the problem of optimizing the use of straw, especially soybean straw in Keerom Regency, Papua Province, among others, field grass is still quite available, lack of knowledge of farmers, increase the workload, need storage space, are not favored by livestock, and have a variety of nutrients (Usman, et al, 2015).

The high price of fertilizer every year makes farmers/breeders suffocate and cannot buy, which in the end they sell their land to reduce fertilizer costs. But there are also farmers/breeders in Kediri City using cow dung as organic fertilizer instead of chemical fertilizers to minimize fertilizer costs, where the community can use cow dung that was previously only piled up to become valuable. more with the manufacture of organic fertilizers (Pujihartati, et al, 2021).

4.6.6. Laws and Regulations

The Food Security and Agriculture Department continues to implement and oversee the regional regulation and the Omnibus Law regarding the protection of agricultural land for food in Kediri City, because the regional regulation made is based on and centered on the Omnibus Law and ministry regulations and agricultural land in Kediri City has been protected by the SAFL and RSP regulation. The protection of agricultural land is an integral part of regional spatial planning and is carried out by establishing protected food-agricultural areas, but in reality, food-agricultural lands located in urban areas also need to be protected (Freastoni and Sirajuddin, 2010).

Many farmers/breeders are not aware of the SAFL regulation and hope that agricultural land will be maintained and no land

conversion is carried out so that farmers/breeders can continue to work as usual in order to maintain their socio-economic status, but land conversion still occurs due to rapid environmental changes such as a surge population, industry, housing, and others. Land conversion occurs due to pressure from other needs such as industry, housing, infrastructure development, and so on (Cahyaningrum, 2019). Chofyan, Rustan, and Hariyanto (2016) also add that there is an interest in local governments to raise funds through regional revenue, among others, by increasing the economic value of agricultural land so that land conversion for industry or settlement is considered more profitable because it generates more Land and Building Taxes higher than the agricultural sector.

4.6.7. Urban Forest

Urban forests provide many benefits for the people who live in Mojoroto Sub-District, both in terms of agriculture, animal husbandry, and other matters related to community activities. The urban forest also functions as a Green Open Space (GOS) and the lungs of the city in the Mojoroto Sub-District area, especially in the Pojok village which makes the air quality there much fresher. The public as users of public GOS want the function of GOS as a shade and lungs of the city, a center for community interaction and communication (Imansari and Khadiyanta, 2015).

In addition, the people there, especially farmers/breeders, often take grass in the urban forest area if the availability of grass decreases or dies due to chemical spraying on agricultural land. This is because the grass in the urban forest area is much fresher than the grass on agricultural land. According to Andry et al (2017), a lot of grass grows wild that has never been trimmed in urban forest areas. Farmers/breeders in Kediri City indirectly clean and add to the aesthetic value of the urban forest, keeping it clean and healthy and attractive to the eye.

4.6.8. Business permit

A business permit is very necessary for everyone who wants to create or establish a business or industry, be it animal husbandry, agriculture or other industries, so that department officers in Kediri City prioritize business permits so that people can do their business safely and quietly and are protected by the city government. Department officers also provide guidance to farmers/breeders regarding business permits that are adjusted to the Environmental Impact Analysis (EIA). According to Sukananda and Nugraha (2020), Law no. 32 of 2009 concerning Environmental Protection and Management (EPM) EIA as the first basis for a business licensing system will have a major influence on environmental permits that will be issued by the government and continue on business/activity permits.

The EIA can be seen from the environmental quality standards and also the environmental feasibility assessment of the businesses/activities made by the farmers/breeders in Kediri City. Omnibus Law No. 11 of 2020 concerning Environmental Approval, environmental quality standards include water quality standards, wastewater quality standards, sea water quality standards, ambient air quality standards, emission quality standards, interference quality standards, and other quality standards in accordance with the development of science and technology. Environmental feasibility assessment is based on the value of environmental quality standards, environmental pollution, and others as the department is responsible for issuing a decision on the environmental feasibility of a business/activity for farmers/breeders listed in Government Regulation no. 27 of 1999 concerning Environmental Impact Analysis.

4.6.9. Other Industries

With the conversion of this land to other industries, many people, especially farmers/breeders in Kediri City, have experienced social and economic changes, which initially they still have a traditional mindset and now turn into a materialistic mindset such as switching jobs to traders, construction workers, and etc. According to Harini and Affandi (2017) that social changes after the existence of factories or other industries have caused the village community's traditions to have shifted, the community turned into individualism, and many immigrants, while the economic changes were narrowing agricultural land, tertiary needs being able to be fulfilled, high job mobility, and the pattern of thought changes to materialism.

Many farmers/breeders want the Kediri City government to understand which land layout mapping is good for industry or for agriculture or animal husbandry, so as not to sacrifice agricultural land to be used as industrial land or any land. The rampant industrial development followed by many newcomers working both in the industrial and other sectors resulted in an increasing need for housing. This is the same as the current condition of Kediri City where there are many changes or conversions of land or land used as industries and residences, for example housing because of the large number of immigrants (Niandyti, Sufyandi, and Utami, 2019).

4.6.10. Food security

Food security which was proclaimed by President Joko Widodo and Vice President Jusuf Kalla in 2014 – 2019 wants agricultural development in the future, so that the department, especially the Food Security and Agriculture Department of Kediri City, provides guidance to farmers/breeders regarding food security which is regulated by law and Ministry Regulations. Strengthening food security towards food self-sufficiency by increasing staple food production, stabilizing food prices, ensuring safe and quality food prices with increased nutritional value and increasing the welfare of food business actors (Nurkhayani, Setyowati, and Sandyatma, 2015).

The farmers/breeders in Kediri City are very positive about the SAFL regulations from the department and also the rules from the central government, but they expect the city government to be more transparent to them so that they know about land mapping and also get information. In addition, it can regulate several sectors and there is no confusion in the regulations so that farmers/breeders can survive. This is an inhibiting factor for those who find it difficult to maintain their agricultural land, resulting in land conversion. According to Dekasari (2016), the inhibiting factors are that many human resources lack knowledge, lack of capital to improve their farming business, and weather factors that are very influential in running their farming business.

4.6.11. Laboratory

The future plan of the Food Security and Agriculture Department of Kediri City is to build an animal husandry laboratory to carry out tests or tests on animal feed, animal health, animal products, and wants to reduce the cost of

laboratory expenses that are often carried out and sent to the Provincial Animal Husbandry Service. East Java. According to Iqbal (2011) that animal health services include veterinary laboratory services, veterinary examination and testing laboratory services, veterinary medical services, and/or services at the Animal Health Center (AHC). The department officers already know that in the future animal husbandry in Kediri City is very difficult to develop and agricultural land is also starting to decrease, so they prioritize animal health over livestock.

4.6.12. Agricultural land

Agricultural land in Kediri City is decreasing every year due to the conversion of land to be used as industrial development, housing, and others so that it affects the amount of animal feed taken. The Food Security and Agriculture Department of Kediri City establishes SAFL regulations for the mayor and the Regional People's Representative Council (RPRC) to protect agricultural land. Through the establishment of SAFL regulation policies, the economic conditions and policies in the region must take into account and these rural area institutions can also manage SAFL incentives that will be received by farmers (Kusumastuti, Kolopaking, and Barus, 2018).

The existence of the agricultural land conversion due to those farmers/breeders in Kediri City sell their land on the grounds of family economic constraints and uncertain incomes, besides that they also have concurrent professions as construction workers or factory workers. There are also some farmers concurrently or have other livelihoods such as teachers and traders, farmers' income has not changed and the rice fields are no longer productive for agricultural land because they often experience crop failure (Hendrawan and Dewi, 2016).

Farmers/breeders really hope that agriculture must be integrated with animal husbandry, because the integration between agriculture and animal husbandry will bring maximum results because animal husbandry cannot be separated from agriculture where all animal feed such as grass and agricultural waste comes from agricultural land. Chaniago (2015) said that the integration pattern is feasible to develop because it increases farmers' income and reduces production costs compared to farming activities that have been carried out by farmers.

4.6.13. Employment Opportunities

The loss of agricultural land in Kediri City also has an impact on the loss of community jobs as farmers, causing the number of farmers/breeders in Kediri City decreasing, other factors are socio-economic, and government policy factors. The socio-economic factors experienced by them are the low level of education they have from elementary to junior high school, but there are also those that support high school education to postgraduate education. According to Rahman, Kusuma, and Arfyanto (2020) that the lower the education level of workers, the more limited their choice of work in low-skilled groups, thereby increasing their vulnerability in the labor market.

Families of farmers/breeders do not want to continue their family-owned business because their sons prefer clear jobs and fixed incomes such as factory workers, traders, travellers, and others, and some of their children are still child. Susilowati (2016) said that the declining interest of young workers in the agricultural sector has consequences for the sustainability of the agricultural sector in the future, namely the burden of the agricultural sector is getting heavier with the increase in population and food demand.

Government policy factors also affect the loss of job opportunities for farmers/breeders which government policy can change the spatial arrangement of the area in Kediri City depending on the needs or interests which according to the government should be increased or reduced. According to Arvianti, et al (2019) that the number of residents in cities from year to year continues to increase by 4%, if this continues, agricultural land which is generally located in villages will be increasingly abandoned.

4.6.14. Animal Feed

The efforts of the city government, especially the Food Security and Agriculture Department of Kediri City, are to use dry agricultural land or moor as forage planting land and provide guidance on forage feed processing, both about storage, preservation, and feed technology to farmers/breeders. The efforts made are storing, preserving, and improving the quality or nutritional value through a touch of feed technology. Efforts like this are a solution for farmers/breeders who have difficulty finding animal feed, especially forage (Sari, Liman, and Muhtarudin, 2016).

The farmers/breeders prefer the traditional method which is often done by them every day, because this method is much more efficient and less complicated. There are also farmers/breeders who use feed processing technology in order to cut costs and time spent so they don't worry if the dry season arrives. The ability of the community to overcome the problems they face independently is the main indicator of increasing income and living welfare (Kleden and Nenobais, 2018).

Whereas in Kediri City, the potential for agricultural waste is quite high and it is possible to provide sufficient feed for ruminants, especially beef cattle. The department officer has also held outreach and guidance on feed ingredients in Kediri City to farmers/breeders. The socialization is carried out by providing knowledge about local feed ingredients such as agricultural waste which is very abundant and cannot be maximized for its use as ruminant feed (goats, sheep, and cattle) (Purnamasari, etc., 2020).

Although farmers/breeders in Kediri City often experience a shortage of forage feed, they don't feel any trouble to find and obtain forage feed, because they can take it on land owned by their own family or belonging to a farmer group and can even be taken on vacant land, so they rarely use agricultural waste. Accessibility based on the origin of the feed is easy, because the feed used to meet the needs of livestock comes from their own land in the form of yards, rice fields, and fields managed by farmers to grow food crops and animal feed (Handayanta, Rahayu, and Wibowo, 2015).

4.6.15. Development

Many farmers/breeders strongly oppose the existence of developments such as warehouses, industries, and others on their agricultural land, but they are powerless and cannot go against the rules from the government. According to Pujiwati and Rubiati (2017), land acquisition for the public interest must be carried out by the Government and the land is then owned by the Government or Regional Government.

This could be due to farmers/breeders selling their land in order to maintain their family's economy or the government focusing on the public interest to improve the welfare of its people but sacrificing agricultural land in their cities. Farmers were forced to give up their rice fields being evicted on the grounds that the village government intervened which was considered to be of little help to the housing sector in building housing on agricultural land owned by residents (Hendrawan and Dewi, 2016). Kusumastuti, Kolopaking, and Barus (2018) add that the price of land around development areas and areas that are transformed into cities will increase so that land owners are tempted to sell or convert their land.

4.6.16. Government

The SAFL regulation made by the government, especially the Food Security and Agriculture Department of Kediri City, is intended to empower and protect the community, so that they continue to carry out their duties such as farmers or ranchers and are safe and comfortable in carrying out their daily lives. According to Satria, Falatehan, and Beik (2018), the concept of community empowerment means placing the community and its institutions as the basic force for economic, political, social and cultural development and acting as a locomotive for economic progress.

In addition, most of them are people who are less well off in terms of economy, food, clothing, education, and others who only seek economic justice from the city government so that the government pays attention and sees their condition firsthand. In article 5 of Law no. 16 of 2011, poor people or groups of poor people are people who cannot fulfill basic rights properly and independently, such as: the right to food, clothing, health services, education services, work and business, and/or housing (Raharjo, Angkasa, and Bintoro, 2015)

Farmers/breeders also hope that there will be special protection for farmers/breeders as well as access to provide advice to the government. Bachtiar (2016) said that the guarantee of protection is directed to the existence of access to justice for justice seekers, especially for those who cannot afford it, through a legal instrument that opens space for them to obtain their constitutional rights, namely the right to legal aid.

4.6.17. Protection

The farmers/breeders in Kediri City really want not only agricultural land to be protected and maintained, but also farmers and ranchers also need protection in order to make it easier for them in any way. This SAFL regulation has included protection of both the protection of agricultural land as well as the protection of farmers and breeders as stated in Article 30 paragraphs 5 and 6 and Article 31 paragraphs 1 and 4 where the government has prepared compensation and guarantees for the conversion of agricultural land in Kediri City to agriculture land owners by providing replacement land equal to 3x the area of land previously owned. According to Carlisle, et al (2019), incentive or compensation programs to protect land and provide more for farmers have also been piloted at the state level.

In the agricultural policy contained in this SAFL regulation, the city government applies three (3) approaches to the protection of agricultural land, namely the regulatory approach, the community group approach, and the economic approach. According to Tanentzap, et al (2015) are 1) a regulatory approach that can be enforced through penalties and conditions provided for financial support to farmers, 2) a community-based approach that supports farmers and local stakeholders, and 3) an economic instrument approach, which pays farmers directly or create markets to adopt practices that minimize environmental impact and provide non-commodity outputs.

In fact, apart from the establishment of SAFL regulations related to the agricultural land protection and the socio-economic status of farmers/breeders, the city government's main objective is to implement modern animal husbandry in Kediri City in the future on farms owned by farmers/breeders. Hasibuan (2016) says that economic opportunities take advantage of every profitable opportunity while its manifestations vary in various regions according to agricultural patterns and cropping patterns. Even though there are SAFL regulations, farmers/breeders are also expected not to sell their agricultural land and continue to support the government's efforts to realize and run these regulations smoothly.

4.6.18. Farmers and Breeders

The Kediri City Government through the Food Security and Agriculture Department often provides guidance to farmers/breeders regarding business permits and convinces them of the regional regulation and the Omnibus Law, so that they do not take the wrong steps. However, the department officer only provides guidance to groups of farmers/breeders formed by the service, other than that, farmers/breeders outside the group do not get it. In the social reality in society, it cannot be ruled out that certain circumstances make not all groups in society easily feel welfare, including the opportunity to get justice (access to justice) (Bachtiar, 2016).

The absence of guidance that is spread evenly to all layers of farmers/breeders in Kediri City, causing them to be difficult to progress and unable to develop their mindset and work due to lack of guidance from the department officer. In article 40 of Law no. 19 of 2013 concerning Protection and Empowerment of Farmers where farmer empowerment is carried out to promote and develop the mindset and work of farmers, improve farming, and require and strengthen farmer institutions to be independent and highly competitive (Pujiwati and Rubiati, 2017).

The farmers/breeders hope that the SAFL regulations can run well and smooth as well as the protection of farmers, because it will be very difficult for them to find and obtain daily necessities such as food, household needs, and others due to changes in land use in Kediri City. Most people allocate their income to fulfill secondary needs for one month, namely electricity tax needs, social needs, and consumption of fuel oil needs (Mahardika and Muta'ali, 2018).

4.6.19. Beef Cattle Farm

Animal husbandry, especially beef cattle farming, cannot be separated from agricultural land, both wetland and dryland in terms of animal feed obtained. If beef cattle farming in Kediri City is integrated with agriculture, maximum results will be obtained and both rely on one another. In regional development, an appropriate physical environment needs to be supported by the availability of forage for animal feed and the amount of forage production in the region related to the animal holding capacity (Suhaema, Widiatmaka, and Tjahjono, 2014).

Ownership of agricultural land and beef cattle farms owned by farmers/breeders in Kediri City is land that has been handed down from generation to generation by their families. For those who have narrow land and they cannot fulfill their needs economically, they sell their land to meet their daily needs. Smallholder farmers tend to sell their land because the income earned from the land is not sufficient for their household needs (Arifin, Azizah, and Irdaf, 2017). They are just hoping that the city government will not carry out construction on fertile land so that they can survive and work on their land for the needs of their families.

Most of them work as farming which is their main job compared to livestock where raising livestock is only for their family's savings and on average have 1 – 5 beef cattle, so they don't focus on it unless there are some breeders who actually do livestock farming as their main job so as not to break down or stop. The purpose of maintenance as a main business and as savings to finance children's studies (Otoluwa, et al, 2016). Isyanto (2015) added that farmers who have non-agricultural main jobs will certainly devote more time to their main job, especially if the income contribution from the beef cattle fattening business is smaller than the income contribution from their main job.

4.6.20. Farm Pollution

Currently, beef cattle farms in Kediri City often experience problems, namely the problem of pollution of beef cattle farm waste such as odor pollution, wastewater, and others. The Food Security and Agriculture Department of Kediri City has a goal, namely wanting to create and build modern farms, both poultry and ruminant farms in the future. It aims to reduce pollution from smallholder farms which often cause problems. The farmers/breeders in Kediri City are already good at handling waste and there is no smell of sewage in their cattle pens, although there is still sediment from cow dung mixed with water and cow urine that settles. According to Romansah (2020) that if in this case the waste is directly disposed of through waterways or sewers and then enters the environment without first going through a processing process, then water and soil pollution cannot be avoided.

V. Discussion

5.1. Agricultural Land in Kediri City

Productive agricultural land for farmers/breeders are not only used as foodstuffs such as rice and corn, but also used to plant elephant grass as an additional forage of animal feed if the availability of elephant grass in the moor, forest, or vacant land is insufficient. Although the wetland agricultural or rice fields is often used by farmers to take advantage of the remaining production of rice and corn as a beef cattle feed, farmers also use dryland agricultural to take grass such as field grass and elephant grass as the main beef cattle feed.

This increase in moor land occurs due to changes in land use from productive agricultural/rice fields into a non-productive agricultural land, which will later be used as housing, shops, other buildings, or as a vacant land to grow the field grass intentionally use a beef cattle feed.

5.2. Land Use Mapping in Kediri City

Land use changes in Kediri City are more common in wetland agriculture (rice fields), dryland agriculture (moor), and also on vacant land, the rest comes from other sectors / facilities such as housing, government, private companies, industry, and others. Broad reduction occurred in the type of use of thicket forest, mixed gardens, meadows / sabana, irrigated rice fields, rainfed rice fields, barren land, and moorings / fields (Rumetna, Sediyono, and Hartono, 2017).

Land use changes on wetland agriculture more often in the Kediri City because farmers/breeders are unable to process the land they have and the income produced from land is not able to meet daily necessities, so that they change the land use into dryland agriculture or non-productive agricultural land for sale. Yagi and Garrod (2018) said that farmers with good fixed income can maintain agricultural land. Given the lower fixed income, farmers with large land areas are assumed to tend to sell their property such as farmers/breeders in Kediri City who sell rice fields and moorings and even their livestock are also sold and switch to a more established profession.

Farmers and breeders in Kediri City get a low wage or income from the minimum wage established by the city government in Kediri City because the agricultural products obtained change. Gyapong (2020) said that the minimum wage has attracted policy attention, but now as an effective measure to overcome poverty and as a means of social protection for vulnerable groups, assuming to provide guarantees for workers with low-skills low wages to get "worthy" wages and sustain at least subsistence living standards.

5.3. Wetland Agricultural Land Mapping

The changes of land conversion are due to the owners of wetland agriculture, both farmers and wetland agriculture holders themselves, by selling their land to improve the family's economy or switching to more established jobs such as construction workers, and others. According to Dewi and Rudiarto (2013), usually the owners of agricultural land are in one clump or one location in a certain area which then almost simultaneously sells their agricultural land.

Another cause is the rate of population growth that is getting faster from year to year so that the need for facilities such as housing, shops, and other facilities increases drastically. This population growth rate is not natural, but the number of residents who are not native to Kediri City moved and settled in Kediri City, many of whom came from outside the City of Kediri such as Kediri Regency, big cities like Jakarta, Surabaya, and others. According to Janah, Eddy, and Dalmiyatun (2017), the main factor that contributes to the decline in agricultural land is the rate of population growth which causes an increase in the need for settlements and other facilities, and the rate of population growth is not only natural growth, but also due to population movement as a result of the location of Sayung Sub-District which is close to the industrial center in Semarang City.

The reduction in wetland agriculture in Kediri City does not affect wetland agriculture that protected by the Kediri City Government, especially the Food Security and Agriculture Department into Regional Regulations in Chapter IV of the determination of SAFL Protection Article 8 and Article 9 and

Chapter IX Control of Land Transfer Article 30 and article 31. Boz (2016) says that sustainability in agricultural production; in economic terms it means generating sufficient income for the farmers; and finally, in social terms it means enjoying rural life which is open to social change and development. Sutrisno and Setiawan (2018) added, the Law on Protection of Sustainable Urban Agricultural Land is one of the political and legal breakthroughs from the government to protect agricultural land, the government has shown its serious concern about the conversion of agricultural land and the achievement of food security.

5.4. Dryland Agriculture Land Mapping

The climate and topography in Mojoroto Sub-District are very different from other sub-districts in Kediri City where the area is dry but the temperature is cool mixed with heat due to the intensity of the strong winds and the humidity also changes frequently, so this sub-district is characterized as an area that is less fertile and not suitable as an agricultural area. Dry land environments are often characterized by relatively cold and dry seasons which are categorized as semi-arid with a ratio value of 0.20 to 0.50 P/PET (precipitation to potential evapotranspiration), followed by relatively hot and dry seasons which are categorized as arid with ratio values. 0.05 to 0.20 P/PET, lastly the dry season and dry rain which are categorized as dry sub humid with a ratio value of 0.50 to 0.65 P/PET (Food and Agriculture Organization, 2008).

Dryland agriculture also includes land protected by the government of Kediri City which has been listed in the Regional Regulation of the Food Security and Agriculture Department of Kediri City in chapter IV regarding the stipulation of SAFL Protection article 8 paragraph 2 and paragraph 3 and the Ministry of Agriculture Regulation article 29 paragraph 1 to verse 7. Sardiana, et al (2017) said that the newest vegetation on dry land in Tegalalang is Orange, Papaya, Peanut, Coffee, Salak, Chili, Cassava, Ginger, Chocolate, Coconut, Big Grass, Banana, Sweet Potato and Mangosteen. This dryland agriculture in Kediri City is used by farmers/breeders to plant elephant grass as feed for beef cattle, soybeans, cassava, sweet potatoes, and bananas which are additional food ingredients other than rice and corn.

5.5. Slope Level and Slope Type

The results of the assessment of slope level and slope type that has been mapped in Figure 12, the level of slope 0 – 8% is marked in green and has a flat type of slope, the level of slope 8 – 15% is purple has a gentle slope type, the slope level is 15 – 25% is marked in light blue with a slightly steep slope type, 25 – 40% has an orange color and the slope type is steep, and a slope level > 40% is red and the slope type is very steep. According to Terfa and Suryabhagavan (2015), a relatively flat area and must be more than 80% of the rangeland area (land use, soil, slope, and rainfall) is very suitable for all categories of livestock simultaneously. The Mojoroto sub-district area is not suitable to be used as livestock land due to the contours of the land and the high slope of the land. Parmawati, et al (2018) say that the slopes of the land that can be used for livestock are in the second strata category, namely the slope is less than or equal to 15%, and some land has a slope of less than or equal to 35% can be utilized by modifying the contour of the soil in stages. The farmers/breeders in the Mojoroto sub-district have modified the contours of the land to make it balanced and even by adding new soil so that the contours of the land become flat.

The slope level and the slope type will determine the danger or not of soil erosion that occurs, land management such as agricultural land, and the influence of high and low temperatures and solar radiation in a place, especially in Kediri City. Terfa and Suryabhagavan (2015) added, slope is a very important factor to determine the suitability of rangeland for animal production, animal can easily graze on flat and gentle slopes and most of the feed consumed is used for fattening without much energy loss. The lands in Kediri City have different land slopes and land slopes types so that the arrangements and management are also different, which must follow the rules of the Ministry of Agrarian Affairs and Spatial Planning and the Ministry of Agriculture of the Republic of Indonesia.

5.6. Kediri City Climate

Regional biophysics in Kediri City has more flat and gentle slopes in each area with an average annual rainfall of 847.33 mm and an average total rainfall in the 2016 – 2019 period of 2,128.25 mm. Biophysically areas with flat to gentle slopes, grasslands and areas with an average annual rainfall of > 800 mm are very suitable for the production of beef cattle and sheep (Terfa and Suryabhagavan, 2015). However, this is not in accordance with Suhaema, Widiatmaka, and Tjahjono (2014) where high rainfall intensity (>4,000 mm per year) and slopes >15% affect the suitability of forage growing in pastures, because the City of Kediri only has rainfall ranging from 1,400 – 3,460 mm per year and also Kediri City is a lowland area even though the City of Kediri also has a slope of > 15% in each area.

In 2019 the rainfall in the early season in Kediri City began in November where food crops (rice and corn) and also animal feed (elephant grass and field grass) got good growth. Brown, et al (2019) say rainfall in the early season, promotes the growth of high-quality green pastures which has a significant positive impact on livestock performance at a time when pasture is usually of very low quality.

5.7. Soil Type

5.7.1. Alluvial Soil

Alluvial soils, both alluvial and alluvial associations (gray and gray brown) in Kediri City based on an explanation from the Directorate General of Human Settlements (2014) which are under the auspices of the Ministry of Public Works and Public Housing, are soils that have parent material of clay deposits originating from new deposits, layers, organic matter in irregular amounts in depth. The soil is quite deep and has a coarse to sandy texture on the upper boundary, a fine clay texture on the lower limit, a weak fine lump structure to subangular, medium calcareous, with very low organic carbon, slightly alkaline, and non-salt (Djili and Hamdi-Aïssa, 2017).

According to Bowles, et al (2018), the mineral content of alluvial soils consists of a mixture of Pt-Fe (Platinum-Iron), euhedral crystals of a mixture of Os-Ir (Iridosmine/Osmium+Iridium) and laurite-erlichmanite (RuS2-OsS2). can be arranged in the Pt-Fe alloy or occur independently.

Small proportions of tulameenite (Pt2CuFe) are also present, platinum-group element sulfides (PGE) and tellurium and Cusulfides have been reported as inclusions in Pt-Fe nuggets. However, for the type of soil in Kediri City, more than 85-90% mostly converted from agricultural land (rice fields or moor) towards development such as settlements, malls, shops, and others, leaving agricultural lands that utilize this alluvial soil type.

5.7.2. Regosol Soil

The type of regosol soil in Kediri City according to the Directorate General of Human Settlements (2014) is soil with a coarse-textured acid volcanic ash/sand as the parent material with a sand content of more than 60%. This land is suitable for the use of primary and secondary forests, shrubs, secondary crops and grasses. Putinella (2014) added that the soil is dominated by the sand fraction (82.62%) followed by the dust fraction (13.16%) and the clay fraction (4.22%) so that it is included in the loamy sand texture class. This is very much in accordance with the soil conditions in the Pesantren Sub-District which in one of the rice fields where the characteristics of the soil are dusty, it is dominated by sand mixed with clay. In addition, the soil in the Pesantren Sub-District also comes from volcanic ash/sand from the eruption of Mount Kelud, making the soil in this sub-district coarse and sandy in texture.

VandenBygaart (2011) adds, regosolic soils are also widely distributed along tributaries and rivers where river displacement and alternating flooding provide new parent material for colonization through vegetation and pusher exposure from the earth's surface. Pesantren Sub-District areas have Green Open Spaces (GOS), namely primary and secondary forests as associations of vegetation with springs and soil types and are suitable for ruminant livestock both beef cattle and dairy cattle, this is also appropriate and stated in the Kediri City regulation of Regional Spatial Planning City (RSP) article 52 concerning livestock areas.

5.7.3. Mediterranean and Lithosol Soil

Lithosol and Mediterranean soils located in Mojoroto Sub-District, precisely on the slopes and peaks of Mount Klotok and Mount Maskumambang, have a slightly dense soil texture at the top and many have rocks underneath. According to the Directorate General of Human Settlements (2014), lithosol soil is mineral soil with a thickness of 20 cm or less, underneath which there is an integrated hard rock. Priyono, et al (2019) said that the soil is very poor in nutrients and is a soil residue that has been eroded or degraded for hundreds of thousands of years, the texture is sandy, the primary particles are dominated by resistant minerals (silicious, rich in silicate/quartz), poor in macro and mineral elements. micro, except potassium. This is in accordance with the existing soil conditions in the areas of Mount Klotok and Mount Maskumambang with soil that has been degraded since the time of the Kadhiri kingdom so that this land is not very suitable for agricultural land, both rice fields and moor, but suitable for forestry land.

As for Mediterranean soils, according to Priyono, et al (2019), in the rainy season, the soil expands laterally causing the morphology of the soil surface in the form of small mounds (25 - 75 cm wide, 10-15 cm high) called 'gilgey' and in the dry season, the soil stretches and produces cracks 2-10 cm wide enough to >60 cm deep. Siles, et al (2014) said that the analyzed mediterranean soils had remarkable microbial diversity, reductions in functional diversity as well as changes in functional community structure depending on the type of treatment applied considering the different types of carbon sources provided. Based on the Mediterranean soil conditions from the statements of Priyono, et al (2019) and Siles, et al (2014), this is very suitable in the area of Mount Klotok and Mount Maskumambang where this type of soil during the rainy season and dry season often changes, so that the condition of this land undergoes changes in land function and cannot be used as agricultural land like in other areas.

5.8. Water Status in Kediri City

Based on Figure 14, the results of the 2014 Kediri Wastewater Master Plan Preparation survey found that 96% of the people of Kediri City use and utilize artesian/dug/pump well as their main water source, 3% use direct connections from Local Water Company and 1% use bottled/mineral water. This proves that the quality and status of water in Kediri City is still feasible to be used as a source of clean water and also does not require expensive costs in its use where the quality of this spring is still relatively clean, clear, and safe for consumption or use for daily needs. According to Sasongko, Widyastuti, and Priyono (2014), industrial, domestic and other activities have a negative impact on water resources, including a decrease in water quality.

Organic chemicals contained in the dug well water in Kediri City have negative or safe results from organic substances in the dug well water, even though the soil in Kediri City in the explanation of the Soil Types above contains a lot of organic substances. According to Ningrum (2018), this organic substance is easily decomposed by bacteria using dissolved oxygen. Organic substances present in water come from nature or as a result of human activities.

5.9. Forage Feed for Beef Cattle in Kediri City

5.9.1. Rice Straw

The production of early harvested rice into rice straw has decreased in each of these districts by 83%, because the paddy has no rice grains and undergoes a drying process so that the water content in the rice decreases, leaving only dry paddy or rice straw. According to Patiung (2015), this shrinkage rate is due to the accumulation of rice that does not use an adequate base and the rice is only placed on the harvested land.

These farmers/breeders in Kediri City still have limited insight and knowledge about rice straw processing, especially the processing of fermented feeds such as silage. The Agency for Extension and Development of Agricultural Human Resources (2019) states that silage is feed made from forage, agricultural by-products or grains with a certain moisture content that has been preserved by storing in an airtight container for approximately three weeks.

The use of rice straw by farmers/breeders for beef cattle is only when the health condition of the farmers/breeders, the weather is unfavorable to take grass or the amount of elephant grass is not sufficient so that the farmers/breeders mix elephant grass with rice straw as feed. So, beef cattle belonging to farmers/breeders only consume dry matter contained in rice

straw rather than other nutritional content such as crude protein, crude fat, and crude fiber, even though beef cattle also need these nutrients.

5.9.2. Corn Straw

The use of corn straw same as the use of rice straw, is rarely done by farmers/breeders in Kediri City and uses it as a reserve for beef cattle feed when grass production begins to decrease. Just like rice straw, corn straw has a different nutritional content from browned dried corn which will have an impact on the nutritional content of the beef cattle.

The nutritional content of corn straw is 50.0% dry matter, 5.56% crude protein, 33.58% crude fiber, 1.25% crude fat, and 8.42% ash (Islamiyati, 2013). Meanwhile, according to Yuniarsih and Nappu (2013) also analyzed the nutritional content of leaves from corn straw, namely crude protein 5.80%, crude fiber 27.38%, crude fat 2.90% and ash 8.21%.

5.9.3. Elephant Grass

The estimated production of elephant grass in the city of Kediri is higher than the production of elephant grass set by Reksohadiprodjo (1994) where elephant grass can reach 100-200 tons/ha/year and elephant grass odot can reach 30-50 tons/ha/year, but lower than elephant grass production which studied by Lugiyo and Sumarto (2000) where the fresh production of cv Hawaiian elephant grass is 525 tons/ha/year and African cv elephant grass is 376 tons/ha/year. If the estimated production of elephant grass in Kota and Pesantren sub-districts produces 126 tons/year and 36 tons/year per 5,000 m2 ($\frac{1}{2}$ ha), then per 1 ha it can produce 252 tons/year and 72 tons respectively. tons/year.

5.10. Land Carrying Capacity in Kediri City

The land carrying capacity result are not sufficient for the feed needs of beef cattle in the Kediri City because beef cattle population in Kediri City is increasing. In contrast to the Sari, Liman, and Muhtarudin's research (2016) which uses the assumption of 30% and 40%, the capacity to accommodate beef cattle decreases where the carrying capacity of the 30% assumption is 107,631,146 AU and the 40% assumption is 80,723,359 AU. However, according to research by Ardiana, Widodo, and Liman (2015) that corn waste production in Braja Harjosari Village, East Lampung Regency with a usage range of 30% and 40% is not able to meet the needs of the cattle population where the population is 1,895 heads.

The potential of rice straw and corn straw in Kediri City has not been managed properly by farmers/breeders. Rice straw tends to be wasted and becomes waste that is burned every time the harvest is completed, so it is necessary to anticipate the introduction of the potential of rice straw with the concept of zero waste to farmers (Mayulu and Suhardi, 2016). The cause of land carrying capacity of rice straw so low in the Pesantren Sub-District is due to the use of 70-80% rice fields planted with sugar cane which are planted by sugar factory farmers and the rest is planted with corn because the condition of rice fields is much more suitable for corn plants than paddy.

5.11. Land Carrying Capacity Index in Kediri City

If the agricultural land of paddy and corn are used to meet the dry matter needs of beef cattle owned by farmers or breeders in all areas in Kediri City, it is possible that the amount of dry matter needs for beef cattle can be met every day and can cover the lack of nutritional content of elephant grass given. But in reality, rice and corn agricultural land is decreasing and the beef cattle population is increasing, causing the demand for dry matter for beef cattle to decrease in Kediri City. But in reality, paddy and corn agricultural land is decreasing and the beef cattle population is increasing, causing the demand for dry matter for beef cattle to decrease in Kediri City.

VI. Conclusion

Kediri City is not feasible and cannot develop a beef cattle business in the future because agricultural land, both wetland and dryland agriculture, is decreasing when seen from the results of mapping wet land and dry land in 2014 and 2019. In this land suitability mapping, Kediri City is very suitable for paddy fields and moor as forage-producing land and deserves to be developed for each area except in the area around Mount Klotok and Mount Maskumambang, Mojoroto Sub-District which has different soil types, types of slopes, and slopes. The land carrying capacity for forage feed, especially rice straw and corn straw on all land in Kediri City with very critical criteria so that it is not able to support the need for dry matter in beef cattle feed in Kediri City.

The estimated production of elephant grass in Kediri City which is in the urban forest of Mojoroto Sub-District is fairly high, while the production of elephant grass on agricultural land owned by farmers/breeders can be said to be of medium production per year. Utilization of agricultural land in Kediri City when viewed from the perceptions of farmers/breeders and Food Security and Agriculture Department are feed processing equipment, business costs, economy, rat pests, waste products, laws and regulations, urban forests, business permits, other industries, food security, laboratories, agricultural land, employment opportunities, animal feed, development, government, protection, farmers and breeders, beef cattle farm, and farm pollution.

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