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Identification of the Potential Bali Cattle Breeding Business Development Integrated with Oil Palm Plantations in West Pasaman Regency, West Sumatera

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Abstract **Original Research Article**

This research aims to identify and analyze the potential of Bali cattle breeding development that integrated with palm oil plantations, the data used in this research is secondary data rom the BPS, journal, Department of animal husbandry, and Bappeda in West Pasaman. Variables observed are; 1) The general state of research area); 2) Potential HR (Human Resource); SDA (Natural Resources); and; SDL (Land Resources) for the integration development; 3) Region integration business development base in each sub-district; and 4) fund allocation of integration program. The analysis data used sre descriptive analysis and location quation analysis (LQ). The results of this research indicate; 1) Central region of Bali cattle business development, of the 11 existing sub is on; in sub-district Pasaman (1,233); Luhak Nan Duo (2,779); Sasak Ranah Pasisise (1,779); and Kinali (1,997); 2) Potential of human resources with the number of labor force in West Pasaman is 94,982 people of the total population, with 187,199 people and details of productive age shows i.e., age 20-49 years (42,80%) and as much as 1,327 people are the group of farmers/livestock; 3) Potential of natural resources showed the potential of oil palm plantations reach 102,200 Ha of fruit palm oil production 1.759.106.80 Tons with the total number of beef cattle as much as 19,277/tail (1,752%) then the potential of integration is ideal to be implemented implemented in regency of West Pasaman; and 4) fund allocation of integration program on each group of cattle on average reached Rp. 300,000,000. Expected in the presence this potential identification information for Bali cattle business development integrated with palm oil plantations can thrive and ultimately will give an impact on improved productivity among cattle and plantations.

Keywords: Integration, Potential Development, Beef Cattle Bali, Oil Palm Plantations, West Pasaman.

INTRODUCTION

Research background

The contribution of Bali cattle in fulfillment of beef consumption is 26,92% [13] and Bali cattle widely spread almost all over the major islands in Indonesia. But the main problem in the development of beef cattle is the limitation of feed material source, that leading to lower productivity. Therefore, a decrease in the number of beef cattle population of Bali cattle is alleged to be caused by the narrowness of many food land converted into plantation, besides getting smaller of food crop land ownership, which resulted the reduced availability of herbaceous and by product that insufficient agricultural livestock feed needs. Apart from that, the utilization of agricultural land especially outside Java, is not optimal because it generally only functioned for one type of farming and there are still difficulties in providing continuous feed and this can affect the quality of the feed and can decrease the productivity of the cattle, but with the increasing of land utilization for various business activities of agriculture and also the estate, then business development cattle in the central region of Bali, shall done in integrated.

Oil palm plantations are very potential to integrated with beef cattle business [16]. States that a local cow capable of consuming fibrous feed such high forage and concentrates in a sufficient amount of lots, where the feed material can be provided by industry of oil palm plantations. By product of palm oil plantation can be utilized as livestock feed. Bali cattle business integration with Oil palm plantations is done using an approach concept: LEISA (*Low External Input Suistinable Agriculture*, which is the dependence between the crop plantations and livestock can also give profits at both the subsector or that can be called with (*Simbiosis mutualisme*).

West Pasaman Regency is one of the nine in West Sumatra's existing potential in the development of the integration efforts with an area where oil palm plantations that already reach 102,200 Ha [3]. Therefore, 2012 the Central Government in this regard at the Directorate General of livestock Ministry of Agriculture launched a fund sourced from APBN in the form of a program called Integration System with Beef and oil palm (SISKA) To several central region which is in West Sumatra Province, including West Pasaman, namely in the area of Beef cattle breeding centers.

Therefore, The potential of palm oil plantation area, then expected the effort with this integration system can increase the number of existing cattle populations in West Pasaman.

Research purposes

The purposes in this study are: to analyze the potential of SDL (land resources), natural resources (natural resources), and also the potential of human resources (human resources) in an effort to develop Bali beef cattle breeding business integrated with oil palm plantation in West Pasaman Regency.

Benefits of research

It is hoped that it can be useful and can be a guideline in the development of Bali cattle breeding business, for stakeholders, policy makers, communities (farmers/breeders) and also for academics about the business system for integration of cattle and oil palm plantations.

MATERIALS AND METHODS

Location and time of research

This research was conducted in West Pasaman Regency, West Sumatra Province, conducted for 15 days, with the method is determining the location carried out intentionally (Purposive), namely at the location of data collection with the consideration that in the Regency is one of the production centers for the development of beef cattle in West Sumatra. With the core consideration, namely; 1) is a center for beef cattle production; 2) it is known that in West Pasaman Regency, there is a group of farmers who have carried out a system of integration between cattle and oil palm plantations in West Pasaman regency, therefore in this study the regency was chosen as one of the regions of beef cattle development centers.

Data collection method

This research was specifically designed intentionally as a knowledge foundation in developing potential and also the integration concept of Bali cattle with oil palm plantations that are descriptive analysts. The foundation is in the form of intensive and detailed scientific studies of an object to be examined.

The type of data used is secondary data, obtained by searching information directly at the Horticulture and Livestock Food Service Office in West Pasaman Regency as well as information from books, articles, BPS (Central Bureau of Statistics) data in numbers, 2018.

Research variable

- General condition of the area in West Pasaman Regency
- Resource Potential (SD)
- The potential of SDL (Land Resources), SDA (Natural Resources), and HR (Human Resources) in the development of integrated Bali cattle breeding businesses.
- The area of development and population of ruminants in each sub-district in West Pasaman Regency
- Allocation of fund program from the government for the integration of cattle and oil palm.

Data analysis

- **Descriptive Analysis**

  The analysis used is a descriptive analysis analysis, the data will be presented in the form of tables, images and graphs and will be compared with the theory and literature that support this type of research.
- **Location Quation Analysis (LQ)**

  For this LQ analysis, it is used to find out the beef cattle business centers integrated with oil palm plantations in West Pasaman Regency.

The LQ method is formulated as follows:

$$LQ = Si / Ni$$

Information:

Si: The ratio between beef cattle populations with (ST) regions with a population in the same region.

Ni: Ratio between beef cattle populations in West Pasaman Regency with a population in the same district.

LQ > 1 is the center of beef cattle farms.
LQ < 1 is not an area of beef cattle farming.

RESULTS AND DISCUSSION

Regional general conditions

West Pasaman Regency is one of the regencies in West Sumatra which is demographically crossed by the equator which is located between 0003 'north latitude - 0011' south latitude and between 99010'-100004 'east longitude with an area of about 3,887,77 km2 or 9,92% of the total area of West Sumatra Province. West Pasaman Regency has its capital in Pasaman or Simpang Ampek Subdistrict, Administratively, West Pasaman Regency consists of

11 Subdistricts and 19 Nagari with regional borders which are north bounded by Mandailing Natal Regency, North Sumatra Province, east bordering by Pasaman Regency, south bordering Agam Regency and the west are bounded by the Indonesian Ocean, and furthermore for the details of the number of nagari and jorong and the area according to the sub-district in West Pasaman Regency can be seen in Figure 1 and Table 1 below.

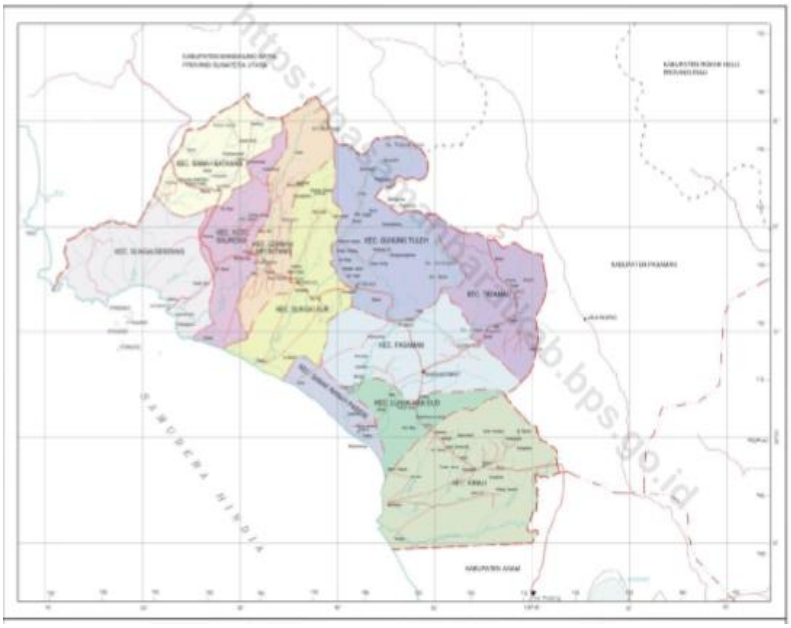

Fig-1: Map of West Pasaman District
Source: BPS in West Pasaman Regency in figures, 2018.

Table-1: Total of Nagari and Jorong Area by District West Pasaman.

No	Sub-Districk	Total		Large	Percentage
		Nagari	Jorong	Region (Km^2)	(%)
1	Sungai Beremas	1	15	440.480	11.33
2	Ranah Batahan	2	30	354.880	9.13
3	Koto Balingka	1	26	340.780	8.77
4	Sungai Aua	1	22	420.160	10.81
5	Lembah Melintang	1	16	263.770	6.78
6	Gunung Tuleh	2	20	453.970	11.68
7	Talamau	3	20	324.240	8.34
8	Pasaman	3	23	508.930	13.09
9	Luhak Nan Duo	2	14	174.210	4.48
10	Sasak Ranah Pasisie	1	11	123.710	3.18
11	Kinali	2	19	482.640	12.41
	Total	19	226	3.887.770	100.00

Source: 1. BPS of West Pasaman Regency in Figures, 2018; 2. RTW West Pasaman, 2011-2021

West Pasaman Regency is geographically located on the west coast of Sumatra which causes the temperature to always be hot and humid. The air temperature of West Pasaman Regency ranges from 20ºC - 26ºC with air humidity around 88% and furthermore West Pasaman Regency is formed from structural, volcanic, fluvial, marin, and other landforms, so that the slope becomes very varied. Most of the landforms are in the form of terrain to bumpy and the rest are in the form of hills and mountains.With these geomorphological conditions, cause the topography of the region also varies, ranging from 0 to 2,912 meters above sea level. Besides that, West Pasaman Regency also has islands which have the potential to be able to be developed and furthermore the formation of land like hills and mountains is mostly in the eastern part. The area in the research area that can be seen from Table 1 above shows that Pasaman Subdistrict has the largest area of 508.93 Km2 (13,09%) and Sasak District Ranah Pasisie has the smallest area of 123.71 Km2 (3,18%) with a total area of the area in West Pasaman Regency is 3,887,770 Km2. In accordance with the opinion of Romjali et. al., 2012 states that the types of large ruminants such as cattle or buffalo have the potential to be developed in areas where Indonesia is especially in research areas (West Pasaman Regency) now by

looking at the geographical, ecological and also the area or type of land used, which in some places have suitable characteristics in the effort to develop large ruminant livestock namely cows or buffaloes.

Resource potential (SD)

Availability of potential resources such as land availability and animal feed, and livestock populations to be developed need to be analyzed in animal development in an area. This potential is determined by the availability of agricultural land, soil fertility, climate, topography, water availability, and existing agricultural patterns [14]. Factors that are considered in carrying out the development of beef cattle are natural resources, human resources and sustainable animal feed resources, then the livestock cultivation process needs to get attention through seeds, technology and a strategic environment that directly or indirectly affects the success of its development. The basic potential possessed by farmers shows the ability of an area. the potential are the experience of farming, farmers' formal and non-formal education and the intensity of communicating with farmers [15].

SDL potential

Types of land use in west pasaman regency

Most of the land use in the Regency of Pasaman is still very productive land to be developed, where there is still land is not used optimally and in this land use system can be seen in Table 2 below, which a shows that paddy fields are 14,840 Ha (3,95%) and non-paddy fields are 361,061 Ha (96,5%). Based on the existing conditions, the availability of land resources in West Pasaman Regency has the potential to carry out agricultural activities and also the potential of the livestock business sector. Based on the conditions in the source of available resources (SD) of land in West Pasaman Regency, it has the potential to be developed in the existing agricultural sector and livestock sub-sector activities for the development of beef cattle business.

Table-2: Land Use Systems

Land processing		Large (Ha)	Percentage (%)
Rice Filed		14.840	3.95
1	Technical Irrigation	3.753	1.00
2	Technical Half Irrigation	2.168	0.58
3	Simple Irrigation	1.614	0.43
4	Non-PU Village Irrigation	1.804	60.48
5	Rainfed	4.126	1.10
Land processing		Large (Ha)	Percentage (%)
Not Rice Filed		361.061	96.05
1	Yard	7.484	1.99
2	Garden	19.696	5.24
3	Field	14.746	3.92
4	Grazing	3.918	1.04
5	While not attempted	3.861	1.03
6	Planted Tree/ Comunnity Forest	18.840	5.01
7	State Forest	134.462	35.77
8	Plantion	138.278	36.79
9	Ect.,	19.776	5.26
	All Total	375.901	100.0

Source: BPS of West Pasaman Regency in Figures, 2018

Land use for plantations with the type of use of non-paddy agricultural land is the largest in the Regency of West Pasaman. Land use for plantation activities has increased quite rapidly over the past 3 (three) years. In 2013 plantation land in West Pasaman Regency reached 146,200 ha and increased to 161,522 ha or 41,55% of the total area of West Pasaman Regency in 2015 and above. The plantation unit activities in West Pasaman Regency consist of oil palm, rubber, cocoa, coffee, sugar palm, and patchouli plantations and the largest type of business / activity in the plantation business is oil palm which can be seen in Table 3 below.

Table-3: Land Use in Plantation Areas

Years	Land Use / Area (Ha)
2013	146.200
2014	161.522
2015	161.522

Source: West Pasaman RTRW

HR potential

Job type and total population

The population of West Pasaman Regency according to the results of the 2017 Population Projection amounted to 427,295 people with 216,093 male souls and 211,202 female souls. With the sex ratio of 102 people for men and every 100 people for women. The population is spread in 11 (eleven) in the District in West Pasaman Regency, if we look at the distribution of the population per Subdistrict, the largest population located in Pasaman District, which is 77,167 people and followed by Kinali Subdistrict with a population is 74,137 and also in the Subdistrict Lembah Melintang is 48,824 people. Whereas the sub-district Sasak Ranah Pasisie with a population of 14,900 inhabitants is the smallest sub-district in the population of West Pasaman Regency. But when compared with the area, the most populous population is in Luhak Nan Duo Subdistrict with a population density of 249 people /Km^2. Followed by Lembah Melintang District with 185 people / Km2. In 2017 the number of households (RT) in West Pasaman Regency was 95,227 households (RT) with an average population per household of 4 people. Population and Population Growth Rate According to the Districts in West Pasaman Regency can be seen in Table 4 below.

Table-4: Population and Population Growth Rate by sub-district in DistrictsWest Pasaman

Sub-District	Total Population	Total KK	Percentage (%)
Sungai Beremas	25.665	4.921	6,006
Ranah Batahan	26.887	5.908	6,292
Koto Balingka	30.481	6.258	7,133
Sungai Aua	37.476	7.440	8,771
Lembah Melintang	48.824	9.281	11,426
Gunung Tuleh	21.311	5.022	4,987
Talamau	27.023	5.963	6,324
Pasaman	77.167	14.870	18,059
Luhak Nan Duo	43.424	8.909	10,163
Sasak Ranah Pasisie	14.900	3.038	3,487
Kinali	74.137	14.186	17,350
Total	427.295	85.796	100,00

Source: BPS of West Pasaman Regency in Figures, 2018

Table-5: Population composition based on age group

Age Group (years)	Total (life)	Percentage (%)
0 – 9	100.328	23.48
10 – 19	839.22	19.64
20 – 49	182.886	42.80
50-64	438.74	10.27
65+	16.285	3.81
Total	427.295	100.00

Source: BPS of West Pasaman Regency in Figures, 2018

The population in West Pasaman Regency is 427,295 people and the distribution according to groups is presented in Table 5 above. This data shows that the majority of the population is in the distribution of productive age is 20-49 years or equal to (42,80%). This illustrates that the population in West Pasaman Regency viewed from its human resources (HR) is quite potential to be able to carry out agricultural or livestock business activities with the number of labor force in West Pasaman Regency amounting to 194,982 people from the total population in the eleven existing sub-districts, with details of 187,199 people working and 7,783 people looking for work [2]. Data on the number of workforce population in Pasaman Brat Regency can be seen in Table 6 below.

Table-6: Total of Population Work Force

Main activity	Sex		Total	Percentage (%)
	Male	Female		
Workforce	120.016	74.966	194.982	50.00
Work	116.759	70.440	187.199	48.00
find a job	3.357	4.562	7.783	02.00
Total	240.132	149.968	389.964	100.00

And furthermore, there are also various types of employment recorded according to the main types of employment and also according to the sex in West Pasaman Regency as shown in the following Table 7.

Table-7: Distribution of Populations Working Based on Main Business Fields

The Main Job	Sex		Total	Percentage (%)
	Male	Female		
1. Agriculture, Animal Husbandry, Forestry, Hunting and Fisheries.	67.753	25.720	93.473	49,93
2. Mining and quarrying	317	-	317	0,17
3. Processing Industry	4.331	3.374	7.705	4,12
4. Electricity, Gas and Water.	-	-	0	0,00
5. Buildings.	10.368	990	11.358	6,07
6. Trade, Retail, Restaurants and Hotels	17.533	26.364	43.897	23,45
7. Transportation, Warehousing and Communication	5.090	-	5.090	2,72
8. Finance, Insurance, Building Rental Business, Land, and Company Services	2.721	863	3.575	1,91
9. Community, Social and Individual Services	8.655	13.129	21.784	11,64
Total	116.768	70.440	187.199	100,00

Source: BPS of West Pasaman Regency in Figures, 2018

It is seen that as many as 49.93% of the people are trying in the agricultural sector and including livestock, farmers generally carry out integrated farming activities between agricultural / plantation crops and livestock business. Indicators of success in a program do not escape the existing HR (Human Resources), which is included in the institutional aspects. Institutional aspects in the form of; 1) increasing member participation in business management; 2) the application of some basic principles of an organization, such as the organizational structure and also the description of its duties, as well as the secretariat of a group; 3) the role of groups in a learning organization for a member and the surrounding community as well; 4) group independence with an indication that there is no more assistance from other parties because the group has been able to access its own resources needed [9] which can be seen in Table 8 below, namely the potential of institutional aspects to be able to increase human resources in the area.

Table-8: Total of Farmer Groups in West Pasaman Regency

No	Description	Total (person)
1	Farmers Group (Poktan)	1.051
2	Combined Farmers Group (Gapoktan)	91
3	Women's Farming Group (KWT)	144
4	Agribusiness Microfinace Institution (LKMA)	30
5	Community Food Barn	11
	Total	1.327

Source: BPS of West Pasaman Regency in Figures, 2018

Potential of natural resources

Oil palm plantation in west pasaman regency

West Pasaman Regency is one of nine regencies in West Sumatra that have the potential to develop oil palm plantations with an area of oil palm plantations in West Pasaman Regency has reached 102,200 Ha [2]. And then in 2012 the central government in this case the Directorate General of Animal Husbandry of the Ministry of Agriculture launched assistance originating from the state budget in the form of a program called the Integrated Cattle and Oil palm Integration System (SISKA) to several central *d*istricts in West Sumatra Province, including in West Pasaman Regency, because they saw a great potential of a large enough oil palm plantation area that could potentially develop beef cattle integration business. It is hoped that with this system farmers could increase income with the production of beef cattle business with oil palm business In the West Pasaman Regency. The potential of natural resources in the form of oil palm plantations in this district can be seen in Table 9 and Table 10.

Table-9: Area of Oil palm Plantation According to Districts in West Pasaman Regency

No	Sub-district	Area Large (Ha)	Production (Ton's)
1	Sungai Beremas	9.270	145.907.20
2	Ranah Batahan	9.690	175.348.00
3	Koto Balinka	11.665	213.782.60
4	Lembah Melintang	11.699	235.119.60
5	Sungai Aua	12.601	216.916.80
6	Gunung tuleh	10.591	188.004.40
7	Pasaman	10.500	207.731.80
8	Sasak ranah pasisie	4.093	64.328.80
9	Luhak nan duo	6.329	55.534.40
10	Kinali	12.351	205.738.00
11	Talamu	3.411	50.695.20
	Total	102.200	175.910.680
	Average	9290.909	1.599.188.0

Source: West Pasaman Regency Plantation Service in BPS West Pasaman in 2018.

Table-10: Total area of oil palm plantations according to subdistricts in West Pasaman Regency

No	Year	Area Large (Ha)	Production (Ton's)
1	2013	100.314	328.808.92
2	2014	101.402	330.881.92
3	2015	101.853	1.645.142.40
4	2016	101.902	1.691.294.00
5	2017	102.200	1.759.106.80
	Total	507.671	5.755.234.04
	Average	101534.2	1.151.046.81

Source: West Pasaman Regency Plantation Service in BPS West Pasaman in 2018.

The pattern of integration of plants and livestock is expected to be a part of sustainable farming with an integration system. The cattle-palm integration system is expected to reduce the problems of cattle waste (sewage) and waste from oil palm plantation business activities. With the simple technology of plantation waste in the form of palm leaves and weeds it can be used as animal feed and cow manure for organic fertilizer [5]. The carrying capacity of an area designated for livestock development is the ability of the region to optimally accommodate a number of livestock populations. Land use is based on: 1) land as a source of animal feed; 2) all types of land are suitable as feed sources; 3) land use for livestock is defined as an effort to harmonize land use with agricultural systems; and 4) the relationship between land and livestock is dynamic. The potential for the development of beef cattle above can still be improved through technological innovation, and the implementation of plant and livestock integration (Crop Livestock System), which is through optimizing the utilization of plant farming waste to feed and utilize livestock manure for plant fertilizers [1].

Cattle population

Cattle population in west pasaman district

Local cattle have proven to have the advantage of being able to adapt to the tropical environment, have good enough resistance to tropical diseases, and can adapt to feed conditions (forages) that are limited and low in nutrition. Local cattle also play an important role in rural farming systems and have been kept by farmers for a long time.

The development of local beef cattle breeding business in West Pasaman Regency has been proclaimed as a mainstay / center for the business of developing beef cattle business types, because geographically it consists mostly of lowland and dry land with mixed crops and plantations which can be utilized as animal feed and subsequently in West Pasaman regency have three sub-districts as centers of local beef cattle breeding, namely in Kinali Subdistrict (6,680), Luhak Nan Duo Sub-district (5,326), and also in Pasaman Sub-district namely (4,294) tails. These three sub-districs become the centre of beef cattle farm because, because the three sub-districts are the most populated with beef cattle, which can be seen in Table 11 and Table 12 below.

Table-11: Livestock Population by Kec and Type of Livestock in West Pasaman Regency

No	Sub-district	Cattle/tail	Percentage (%)
1	Sungai Beremas	96	0,50
2	Ranah Batahan	231	1,20
3	Koto Balinka	728	3,78
4	Lembah Melintang	180	0,93
5	Sungai Aua	67	0,35
6	Gunung tuleh	68	0,35
7	Pasaman	4.293	22,27
8	Sasak ranah pasisie	1.196	6,20
9	Luhak nan duo	5.326	27,63
10	Kinali	6.680	34,65
11	Talamau	412	2,14
	Total	19.277	100.0
	Average	1.752	9.09

Table-12: Total of Cattle Populations 2013-2017

No	Year	Population (Tails)	Increase / Decrease (%)
1	2013	13.438	--
2	2014	15.578	-15,92
3	2015	17.286	-10,96
4	2016	17.587	-1,74
5	2017	19.277	-9,61
Total		83.166	-38,24
Average		16.633	-9,56

Source: West Pasaman Regency Plantation Service in BPS West Pasaman in 2018.

The development of beef cattle population in West Pasaman is not much different from the development of beef cattle in West Sumatra Province; it can be seen in Table 12. The average growth rate of beef cattle in West Pasaman Regency in the last five (5) years 2013-2017 as many as 9,56% of beef cattle in West Pasaman Regency [2] West Pasaman Regency is an area that has considerable potential for livestock business development in addition to land available for both large ruminant and small ruminant and now there is also an increase in the consumption of protein origin beef caused by the large number of plantation company personnel in West Pasaman who are the market for livestock products. Apart from that, the low level of application of technology by farmers and breeders on the scale of on-farm and on-farm farmers that suggesting us to the officials of the West Pasaman Regional Government to further encourage agricultural extension operations in the future, especially in transferring technology in the field of farm to farmers so that the level of profits obtained is higher.

The development of the agricultural sector as well as the farming subsector in the West Pasaman Regency in the future is very suitable to be directed to the concept of integrated agriculture, which supports each other between one type of farming and the other types of farming. For example, the development of farming in the field of animal husbandry in terms of efforts to food procure can be directly supported by the development of corn commodity businesses in the field of food crops and oil palm plantations in the plantation sector, so that "Join Cost" can reduce business costs [8].

Base region

Base for the development of ruminant livestock business

This cattle development area in West Pasaman Regency can be seen from the LQ analysis by considering that the Regency is a center for beef cattle development and which has been determined by the Central Government, The analysis results can be seen in the table 13.

Table-13: Local Beef Cattle Base Areas in West Pasaman Regency.

No	Sub-district	Population	Total Population	Si	LQ
1	Sungai Beremas	96	25.665	0,0037	0,0829
2	Ranah Batahan	231	26.887	0,0086	0,1904
3	Koto Balingka	728	30.481	0,0239	0,5294
4	Sungai Aua	180	37.476	0,0048	0,1065
5	Lembah Melintang	67	48.824	0,0014	0,0304
6	Gunung Tuleh	68	21.311	0,0032	0,0707
7	Talamau	412	27.023	0,0152	0,3379
8	Pasaman	4.293	77.167	0,0556	1,2332
9	Luhak Nan Duo	5.326	43.424	0,1227	2,7187
10	Sasak Ranah Pasisie	1.196	14.900	0,0803	1,7792
11	Kinali	6.680	74.137	0,0901	1,9972

Source: Research Results, 2019

The results showed that there were several central areas in the development of local beef cattle business namely Bali cattle, from 11 existing sub-districts, namely Pasaman District, Luhak Nan Duo, Sasak Ranah Pasisise and Kinali. This illustrates that the existence of several centers in the development of cattle business in West Pasaman District is found In these 4 (four) areas. As is well known that in 2012 the central government in this matter at the Directorate General of Animal Husbandry of the Ministry of Agriculture launched assistance originating from the state budget in the form of a program called the Cattle and Oil palm Integration System (SISKA) to several central districts in the Province West Sumatra, including West Pasaman Regency, which is in the center of the local beef cattle breeding center, namely Bali cattle in several sub-districts, namely: Kinali District, Luhak Nan Duo District and Pasaman District [9].

Daryanto A et al. [6] States that Location Quotient is an indicator that can show the size of the role of a sector in an area compared to other sectors. If the LQ of a sector is worth more than one (> 1), then the sector is the base sector which is the strength of the region to export its products outside the area concerned, whereas if the LQ of a sector is less than 1 (<1), then the sector is the non-base sector that makes the region tends to be an importer. The central region of beef cattle is the central area of beef cattle business development due to the linkages between farmers and existing regional conditions with the provisions of local government policies. Gunardi E [11] states that, to achieve the goal of developing beef cattle can be carried out with three approaches; 1) technical approach namely increasing birth, decreasing mortality; cattle slaughter control and genetic improvement of livestock; 2) integrated approaches, namely those that apply production technology, economic management, socio-cultural considerations included in the "Livestock Sapta Business" as well as the formation of groups of farmers who work closely with relevant agencies; 3) agribusiness approach with the aim of accelerating livestock development through integration of the four aspects, namely land, feed, germ plasma and human resources.

Assistance allocation

Government assistance for 2012-2014 budget funds

Integration of cattle with oil palm is a crop-livestock farming system that is very potential to be developed in Indonesia because it is supported by oil palm planting area reaching 7 million hectares and the suitability of good cattle adaptation [7]. The integration assistance program is a plan that involves various units containing policies and a series of activities. These activities include activities for the utilization of waste from plantation waste which in this case oil palm waste is used as animal feed and livestock waste can also be used as a source of organic fertilizer for the development of oil palm plants.

The program also fosters farmers for feed processing technology innovations according to available local resources and institutional development and through group efforts. The concept of livestock crop integration program is to provide assistance to farmer groups in the form of cattle and facilities and infrastructure to support the progress of integration. The assistance aims to increase the productivity of plants and livestock which in turn can reduce production costs [9]. In general, the concept of integration of livestock plants is a synergism or mutually beneficial relationship between plants and livestock. Where farmers use livestock manure as organic fertilizer for their crops, then use agricultural waste as feed [12]. Therefore, the Directorate General of Animal Husbandry of the Ministry of Agriculture launched assistance originating from the state budget in the form of a program called the Cattle and Oil Palm Integration System (SISKA). The allocation of funds for the integration of beef cattle

and oil palm plant programs is presented in Table 14 below.

Table-14: Allocation of Livestock Group Integration Program Assistance Funds

No	Description	Volume	Total	Percentage (%)
1	Purchasing Bali cows	Average of 28 tail/Group	210.000.000	70.0
2	Copper machine	1 Unit's	45.000.000	15.0
3	Purchasing forage seeds and other production facilities	1 Package	30.000.000	10.0
4	Group Administration	1 Package	15.000.000	5.0
Total			* 300.000.000	100.0

Source: Research Results, 2019

*Average Amount of Providing business assistance for cattle integration with plantations in each livestock farmer group.

The results of this study also explained that the utilization of aid funds for procuring Bali cattle was still lacking (70%), based on technical guidelines for cattle and plant integration the use of funds for the procurement of cattle was at least 85% and the remainder was used for facilities supporting the integration system. The realization of the use of funds is less due to the lack of supervision from the local government on the program that has been given, and this will certainly affect the success of the program that will be carried out for each group member who has carried out this cattle and oil palm integration business.

CONCLUSION

The potential for the integration of integrated Bali cattle farms with oil palm plantations in Pasaman Regency has good potential because it is supported by factors, namely; 1) HR potential with a workforce of 49.93% in the agricultural sector and including livestock and 1,327 people in the number of farmer groups; 2) Potential natural resources in the area of oil palm plantations covering an area of 507,671 ha and production of 5,755,234.04 tons / year; 3) with a development base in Kinali sub-district (1.9972); Luhak Nan Duo (2,7187); Pasaman (1.2332) and Sasak Ranah Pasisie (1.7792); 4) Government support and policies for livestock development programs in each farmer group that have the potential to develop livestock business with integration programs; and 5) There must be rules and policies in the development of integrated livestock businesses so that the business units that are run can run a good and smoothly.

REFERENCES

1. Arfa'i. Potential and Strategy for the Development of Beef Cattle Business in Lima Puluh Kota West Sumatra District [Dissertation]. Bogor: Post Graduate Program in Bogor Agricultural Institute. 2009.
2. [BPS]. Central Statistics Agency 2018. West Pasaman Regency in Figures. Central Bureau of Statistics of West Sumatra Province. 2018.
3. [BPS]. Central Statistics Agency. 2018. West Sumatra in Figures. Central Bureau of Statistics of West Sumatra Province. 2018.
4. Bappeda [Regional Development Planning Agency] Regency of West Pasaman Year.2016. Regional Medium Term Development Plan [RPJM] in West Pasaman District Budget Year 2016-2021. Number: 14 Year 2016. West Sumatra.
5. Bella, Arihant Alba. Perception of Farmers' Motivation against the Integration of Oil Palm Cows [SISKA] in Siak Regency. [Thesis] Faculty of Agriculture, University of Riau, Pekanbaru. 2011.
6. Daryanto, A and Y. Hafizrianda. Analysis of Input-Output and Social Accounting Matrix for Regional Economic Development. IPB Prees. Bogor. 2010.
7. Agriculture Department. Beef Cattle Development Policy in Indonesia. Proceedings of the National Workshop on Dynamics and Performance of Animal Integration Systems - Plants: Rice, Palm, Cocoa. (In Press). Center for Animal Husbandry Research and Development. Bogor. 2010.
8. Department of Agriculture, Horticulture and Animal Husbandry, West Pasaman Regency. Livestock Statistics of West Pasaman Regency. West Pamasan District Animal Husbandry Service. Sumbar. 2015.
9. Directorate General of Animal Husbandry Production Development. General Guidelines for Plant and Animal Integration. Jakarta. Indonesia. 2012
10. Directorate General of Animal Husbandry. Animal Husbandry and Animal Health Statistics. Livestock and Animal Health Statistics 2012. Jakarta, Directorate General of Animal Husbandry and Animal Health, Ministry of Agriculture of the Republic of Indonesia. 2012.
11. Rowen HS, editor. Behind East Asian growth: The political and social foundations of prosperity. Psychology Press; 1998.

12. Ismail IG and Djajanegara A. Basic Framework for the Development of SUT for Livestock Crops (Draft). PAATP Project, Jakarta. 2004.
13. Purwantara B, Noor RR, Andersson G, Rodriguez-Martinez H. Banteng and Bali cattle in Indonesia: status and forecasts. Reproduction in domestic animals. 2012 Jan;47:2-6.
14. Santosa U. Procedure for Cattle Care. Jakarta [ID]: Swadaya Spreader. 2004.
15. Suroto and Nurhasan. Livestock Sub Sector Policy in Supporting Business System Development for Integration of Oil palm and Beef Cattle. Director of Animal Husbandry Development, Directorate General of Animal Husbandry Production Development. Jakarta. 2014.
16. Umar S. Potential of Oil Palm Plantation as a Center for Beef Cattle Development in Revitalizing and Accelerating Sustainable Livestock Development. Speech of Inauguration of Permanent Professors in the Field of Animal Reproduction in the Faculty of Agriculture, University of North Sumatra, Medan. 2009.