EUROPEAN JOURNAL of SOCIAL SCIENCES

Vol 40 No 4
November, 2013

USD $25.00
CAD $30.00

ISSN: 1450-2267

EUROPEAN JOURNAL OF SOCIAL SCIENCES

ISSN: 1450-2267

Volume 40 No 4 November, 2013

Indexing / Abstracting
European Journal of Social Sciences is indexed in ProQuest ABI/INFORM, Elsevier Bibliographic Databases, EMBASE, Ulrich, DOAJ, Cabell, Compendex, GEOBASE, and Mosby.

EUROPEAN JOURNAL OF SOCIAL SCIENCES

http://www.europeanjournalofsocialsciences.com

Aims and Scope

European Journal of Social Sciences is an international peer-reviewed academic research journal, which has a particular interest in policy-relevant questions and interdisciplinary approaches. The journal serves as a forum for review, reflection and discussion informed by the results of recent and ongoing research. It adopts a broad-ranging view of social studies, charting new questions and new research, and mapping the transformation of social studies in the years to come. The principal purpose of European Journal of Social Sciences is to publish scholarly work in the social sciences defined in the classical sense, that is in the social sciences, the humanities, and the natural sciences. The research that is published may take a theoretical or speculative model as well as statistical and mathematical. Contributions are welcome from all fields which have relevant and insightful comments to make about the social sciences.

European Journal of Social Sciences also aims at providing a unique forum for discussing the fundamental challenges for policy, politics, citizenship, culture and democracy that European integration and enlargement pose. The journal emphasizes the publication of work that engages with issues of major public interest and concern across the world, and highlights the implications of that work for policy and professional practice. It particularly welcomes articles on all aspects of European developments that contribute to the improvement of social science knowledge and to the setting of a policy-focused European research agenda. Examples of typical subject areas covered include: Policy-Making and Agenda-Setting; Multilevel Governance; The Role of Institutions Democracy and Civil Society; Social Structures and Integration; Sustainability and Ecological Modernization; Science, Research, Technology and Society; Scenarios and Strategic Planning; and Public Policy Analysis. European Journal of Social Sciences is interdisciplinary bringing together articles from a textual, philosophical, and social scientific background, as well as from cultural studies. The journal provides a forum for disseminating and enhancing theoretical, empirical and/or pragmatic research across the social sciences and related disciplines. It engages in critical discussions concerning gender, class, sexual preference, ethnicity and other macro or micro sites of political struggle. Other major topics of emphasis are Anthropology, Business and Management, Economics, Education, Environmental Sciences, European Studies, Geography, Government Policy, Law, Philosophy, Politics, Psychology, Social Welfare, Sociology, Statistics, Women's Studies. However, research in all social science fields are welcome.

European Journal of Social Sciences realizes the meaning of fast publication to researchers, particularly to those working in competitive and dynamic fields. Hence, it offers an exceptionally fast publication schedule including prompt peer-review by the experts in the field and immediate publication upon acceptance. The editorial board aims at reviewing the submitted articles as fast as possible and promptly include them in the forthcoming issues should they pass the evaluation process. The journal is published in both print and online formats.

Submissions

All papers are subjected to a blind peer-review process. Articles for consideration are to be directed to the editor through the online submission system.

European Journal of Social Sciences

Volume 40 No 4 November, 2013

Contents

European Journal of Social Sciences
ISSN 1450-2267 Vol. 40 No 4 November, 2013, pp.549 - 555
http://www.europeanjournalofsocialsciences.com

Agroecosystem of Coconut-Cattle and Carrying Capacity Analysis in Lolayan Subdistrcit of Bolaang Mongondow Regency

Artise H.S. Salendu
Social-economic Department, Animal Husbandry Faculty, Sam Ratulangi University
Jl. Kampus Bahu Kleak Manado 95115
Corresponding E-mail: artisesalendu@yahoo.com

Femi H. Elly
Social-economic Department, Animal Husbandry Faculty, Sam Ratulangi University
Jl. Kampus Bahu Kleak Manado 95115

Abstract

Livestock is a subsector that has roles in supporting the economy in Lolayan Subdistrict. In this area, cattle are developed by utilizing land under coconut trees. The problem is the extent to which coconut plantation potentials can support cattle development in this Subdistrict. The research objective is to analyze the carrying capacity of coconut-cattle agroecosystem. Tonayan and Bakan villages were determined purposively, as the villages having the most cattle. The number of respondents were 52 farmers (32 farmers in Tonayan village and 20 farmers in Bakan village). The data were analyzed using the analysis of Effective Livestock Development Potential and Land Carrying Capacity Index *(IDD).* Results of this research indicates that the Maximum Potential of Land Resources *(PMSL)* are 2728.45 Animal Unit (AU). The capacity of cattle population increase based on land resources is 1551.45 AU. The maximum potential based on farmer household heads is 18669 AU and cattle population increase based on farmer household heads of is 17492. The IDD value is 2.03. Based on the research findings, the land under coconut trees in the Lolayan Subdistrict can still be optimized as a source of forage accompanied by the increase in cattle population. Optimization can be conducted by coconut cattle integration approach which is environmentally friendly and sustainable.

Keywords: Agroecosystem, carrying capacity, coconut, cattle

1. Introduction

Lolayan Subdistrict is a subdistrict in Bolaang Mongondow Regency which has an area of 297 km with boundaries: The north side is bordered by Kotamobagu and Passi Subdistrics; The south side by Pinolosian Subdistrict; The west side by Dumoga Subdistrict and the East side by Modayag Subdistrict. It is one of the subdistricts that have the highest cattle population (Central Agency on Statistics of Bolaang Mongondow Regency, 2012).

Livestock is a subsector that has roles in supporting the economy in Lolayan Subdistrict. Cattle constitute livestock that is developed and become source of income of people in Lolayan Subdistrict. In this area, cattle are developed by utilizing land under coconut trees. It is carried out by people considering that the land under coconut trees is just overgrown by weeds. The land under coconut trees in Lolayan Subdistrict is utilized by planting food crops such as corn, but most of the land is not

utilized. The condition supports the development of cattle in this area. Mulyo *et al* (2012) suggests that the development of beef cattle industry has excellent prospects by utilizing both land resources and feed resources (agricultural and plantation waste). This development is mainly for areas outside Java (including in Lolayan Subdistrict).

The problem is that the dry land conditions in some areas, including in Lolayan Subdistrict which requires optimal and sustainable management. Land utilized as agricultural use can cause soil erosion (Salendu, 2012). The dry land utilization is now facing the challenge of high land degradation. Further consequence of land degradation according to Hermawan and Utomo (2012) is the emergence of unproductive or degraded land. Land degradation according to Herrick *et al* (2010) is a problem faced by many countries. In this case, dry land farming systems are not well understood in depth, whereas the ecosystem diversity is quite complex.

Livestock development is beneficial for dry land agroecosystem in Lolayan subdistrict. Cattle development is the entry point of dry land farming systems development. In addition, according to Hermawan and Utomo (2012), livestock development encourages farmers to apply the principles of sustainable land conservation.

Agroecosystem management of coconut and cattle in Lolayan Subdistrict is carried out by utilizing land under coconut trees. Cattle development can be performed while maintaining environmental sustainability. The question is how far the potentials of coconut plantation land support the cattle development in Lolayan Subdistrict. Based on the above conditions, it has been conducted research on carrying capacity analysis of coconut-cattle agroecosystem in Lolayan Subdistrict, Bolaang Mongondow Regency.

2. Research Method

This research was conducted in Lolayan Subdistrict of Bolaang Mongondow Regency using a survey method. Lolayan Subdistrict was determined purposively, as one of the Subdistricts in Bolaang Mongondow Regency having the most cattle. Two villages in Lolayan subdistrict were chosen by purposive sampling, i.e. Tonayan and Bakan village which had the most cattle (Central Agency on Statistics of Lolayan Subdistric, 2012). The livestock farmers in each sample villages were restricted to farmers who had at least 2 (two) cattle and had already sold cattle previously, as many as 52 respondents. Respondents number as many as 52 samples consisted of 32 cattle livestock farmers from Tonayan village and 20 cattle livestock farmers from Bakan village. The data used were cross section and time series data, and the data collection techniques were interview with livestock farmers and direct observation in the field. Data analysis of this research was the analysis of Effective Livestock Development Potential and Land Carrying Capacity Index.

3. Results and Discussion

Environmentally sound farming approach is an approach that begins with an ecosystem approach. An ecosystem is an ecological system formed by the inseparable interrelationship between living things and their environment. Agroecosystem is a group of area of which the environment physical state is almost the same, variability of plants and animals can be expected not to be significantly different. Agroecosystem approach attempts to tackle environmental damage caused by the application of inappropriate agricultural system and as specific farming problem solving due to the use of technology inputs (Sutanto, 2002). Agro-ecosystem management depends on the characteristics of coconut farmers.

Characteristics of farmers can be seen from their level of education. The research showed that the distributions of elementary and junior high schools education levels were respectively 40.38 percent, senior high school was 17.32 percent and Higher Education was 1.29 percent. These education level distributions were categorized low that could affect the mindset of livestock farmers. Higher level

of formal education according to Kiswanto *et al* (2004) can cause a person to think more rationally. The educational level of livestock farmers is an important factor in the development of cattle farming (Hartono, 2012).

Cattle livestock farmers in Lolayan Subdistrict do cattle development by utilizing land under coconut trees either owned by themselves or belonged to other people. The research showed that there were 34 farmers (65.38 percent) having their own coconut trees. Meanwhile, farmers borrowing other farmers' land were as many as 18 people (34.62 percent).

The land carrying capacity based on land tenure for livestock farmers in Lolayan Subdistrict were different. The land area occupied by livestock farmers, either their own land or lending land, with an area of 0.5 - 1 ha was occupied by 29 people (55.77 percent), and the area > 1 ha was occupied by 23 farmers (44.23 percent). The amounts of carrying capacity and productivity conservation of nature, soil and water resources are determined by the interaction between the way people manage natural resources and biophysical environmental factors (Salendu et al, 2012).

Cattle development can be carried out by taking into account the existing agroecosystem. Determination of the utilization of agro-ecosystems in Lolayan Subdistrict is based on the development potential of effective livestock and its carrying capacity index. The research results dealing with the effective livestock development potential and land carrying capacity index based on Appendix 1 can be summarized as in Table 1.

Table 1: Effective Livestock Development Potential and Land Carrying Capacity Index in Lolayan Subdistrict

Coefficients/Variables	Development Potential Value
PMSL	2728.45
KPPTR (SL)	1551.45
PMKK	18669.00
KPPTR (KK)	17492.00
IDD	2.03

The maximum potential of land resources *(PMSL)* under coconut trees for Lolayan Subdistrict is equal to 2728.45 AU. It means that based on land resources under coconut trees in Lolayan Subdistrict can still accommodate cattle population as high as PMSL value. The indication is that the conditions of plantation land can support the development of beef cattle farming. This is supported by the results of study conducted by Hartono (2012) stating that the development of beef cattle cannot be separated from the development of agricultural business.

The capacity of increased cattle population based on land resources under coconut trees is 1551.45 AU. It means that to fulfill the maximum potential of land resources, cattle population in Lolayan Subdistrict can still be increased as many as 1551.45 AU. This effort can be made to optimize the area under coconuts. According to Mulyani *et al* (2011), optimizing the utilization of land resources in supporting agricultural development in the future needs to be carried out more productively and sustainably.

The maximum potential value based on household heads *(KK)* of farmers is 18669.00 AU. It means that based on the availability of labor in Lolayan Subdistrict, the cattle population can be increased up to 18669.00 AU. While the cattle population based on farmer household heads can still be increased to 17492.00. Barus (2004) suggests that one very important aspect is the carrying capacity for the supply of labor resources.

Land carrying capacity index *(IDD)* as high as 2.03 indicates that land carrying capacity under coconut trees in Lolayan Subdistrict is quite high. This means that every increase in 1 AU of cattle can be met from 2.03 ha of land under coconut trees. The research results by Mulyo *et al* (2012) shows that the value of carrying capacity in Semarang Regency equal to 1.022 is still considered having the ability to support activities of beef cattle farming. Nonetheless, Armitage *et al* (2011) states that ecosystem management is related to institutional development using adaptive co-management approach.

Development of cattle farming is carried out by *integrated farming system* approach. It is required to carry out because cattle farming is considered as one of the causes of CO2 emissions leading to global warming increase. Besides generating resources in food needs as the source of protein, cattle farming also generates waste that can cause potentially negative environment. It can occur if the treatment is not carried out properly (Harlia *et al*, 2012). Indonesia currently ranks as number 6 (six) in the world as a producer of greenhouse gas emissions (GHG) from agricultural wastes including livestock wastes (USEPA, 2006 in Pratiwi *et al*, 2012).

Integrated livestock farming is part of the development, thus, the utilization of livestock resources can reduce the effort risks of having sustainability principles (Soedjana, 2007). Management system of cattle-crop integration in some areas in North Sulawesi can increase farmers' income compared to farming systems that are non- integrated (Elly, 2008 ; Elly *et al*, 2008 ; Salendu *et al*, 2012). Management system of cattle-crop integration according to Wibowo and Sumanto (2012) can increase farmers' income. Singh and Nanwal (2010) state that in countries developing I*ntegrated Farming System (IFS),* it serves as a good model to help subsistence farmers achieving a reliable food supply in a larger increase of income and environmental sustainability. *Integrated Farming System (IFS)* is a Philippine farmer culture (Bareja and Sioquim, 2010).

CO2 emission reduction strategies have been widely studied by researchers, including by Fissore *et al* (2011). The efforts to perform in Lolayan Subdistrict is that land under coconut trees can be used as fodder forage crops. Planting fodder forage can also be useful in CO2 emission reductions. However, the management of planting grass under coconut trees must comply with the recommended one, the grazing is arranged in order to avoid over-grazing. This is due to problems of erosion, according to Rahim (2006) it may arise due to cover grass grazed excessively (over-grazing). The number of grazed cattle should depend on the carrying capacity of land under coconut trees.

The benefits of cattle-crop integration system according to Baba *et al* (2012), is the availability of feed for cattle in a sustainable manner, land conservation and income increase as well as the reduction of greenhouse effect. Feed technological innovation in Waste Free Livestock-Crops Integration System *(SITT-BL)* according to Haryanto (2009), provides encouraging opportunities for green and clean agricultural development. Composting activities are *off farm* activities for livestock farmers. Impacts of *off farm* work according to Gillespie and Mishra (2011), are influenced by government payments for farm programs. Kim and Lyon (2011) note that composting is a motivation and strategy in the reduction of greenhouse gases. Greaker and Rosendahl (2008) suggest that the government could implement environmental strategies and policies to influence the behavior of companies in the upstream. Indonesia according to Warr and Joseph (2011) has set a target that by 2020 greenhouse gas emissions will have been reduced by 26 %.

The development of coconut and cattle farming can lead to both positive and negative externalities. Negative externalities generated in non integrated coconut and cattle farming are the reduced availability of feed, reduced employment and reduced air quality. Negative externalities impatcs in Salendu's research (2012) are expressed as the cost of investment in the economic analysis of non integrated coconut and cattle farming. As the efforts to achieve positive externalities, many countries have emphasized improvements in science and technology (Fisher - Vanden and Ho, 2010). Leach (2009) conducts a study concerning policy responses of changes of technology, greenhouse gas emissions and climate on world production. According to Aidt (2010), green taxes can internalize environmental externalities and increase income.

4. Conclusions and Suggestions

The research indicates that the land under coconut trees in Lolayan Subdistrict can still be optimized as the forage source accompanied by the increase in cattle population. Optimization can be carried out by cattle-coconut integration approach that is environmentally friendly and sustainable.

5. Acknowledgements

The writer would like to thank the Rector of Sam Ratulangi University who has provided him the opportunity to obtain research funding through *Hibah Unggulan UNSRAT* Year 2013.

References

[1] Aidt, T. S. 2010. Green taxes: Refunding rules and lobbying. J. Envir Ec & Manag. 60 (2011), 1 (July) : 31-43.

[2] Armitage, D.R, R. Plummer, F. Berkes, R. I. Arthur, A. T. Charles, I. J. Davidson-Hunt, A. P. Diduck, N. C. Doubleday, D. S. Johnson, M. Marschke, P. McConney, E. W. Pinkerton, and E. K. Wollenberg. 2009. *Adaptive Co-Management For Social–Ecological Complexity*. J. Frontiers in Ecology and the Environment. Volume 7, Issue 2 (March 2009). p:95-102. 12/12/2011.

[3] Baba, S., B. Ibrahim., A. Muktiani., and M. Yasin. 2012. Farmers' Problems in Carrying Out Corn and Cattle Integration in South Sulawesi. A Case Study in Bontonompo Selatan Gowa and Mallawa Maros Subdistrict. Proceedings of the National Seminar on Sustainable Livestock 4, Farmers Agribusiness Innovation for Food Security. Animal Husbandry Faculty of Padjadjaran University. Bandung *(in Indonesian).*

[4] Bareja, B.G. and E.M. Sioquim. 2010. More Efficient Mango Production through Integrated Farming System. Crops Review.Com.

[5] Barus, B. 2004. Determination of Land Carrying Capacity Status in Labor Absorption in Agriculture Vegetables Area Using Geographic Information Systems, Case Study in Samarang Subdistrict, Garut, West Java. Land and Environment Journal. Vol. 6 No.2 ,October 2004. p : 57-69. 15/12/2011 *(in Indonesian).*.

[6] *BPS* of Bolaang Mongondow. 2012. Bolaang Mongondow in Numbers. Central Agency on Statistics *(BPS)* of Bolaang Mongondow *(in Indonesian).*

[7] *BPS* of Lolayan Subdistrict. 2012. Lolayan Subdistrict in Numbers 2010. Central Agency on Statistics *(BPS)* of Lolayan Subdistrict *(in Indonesian).*

[8] Elly, F.H. 2008. Impacts of Transaction Cost on Economics Behavior of Farmers Household of Cattle-Crops Business in North Sulawesi. Doctoral Dissertation. Postgraduate Program of Bogor Agricultural University, Bogor *(in Indonesian).*

[9] Elly, F.H., B.M. Sinaga., S.U. Kuntjoro and N. Kusnadi. 2008. Cattle Business Development through Integration of Cattle Crops in North Sulawesi. Journal of Agricultural Research and Development. Agricultural Research and Development Centre of Agricultural Department, Bogor *(in Indonesian).*

[10] Fisher-Vanden, K and M. S. Ho. 2010. Technology, development, and the environment. J. Envir Ec & Manag. 59 (2010), 1 (January) : 94-108.

[11] Fissore, C. J. Espeleta, E.A. Nater, S.E. Hobbie and P.B. Reich. 2010. Limited Potential For Terrestrial Carbon Sequestration To Offset Fossil-Fuel Emissions In The Upper Midwestern US. J. Frontiers in Ecology and the Environment. Volume 8, Issue 8 (October 2010). p : 409–413.

[12] Gillespie, J and A. Mishra. 2011. Off-farm employment and reasons for entering farming as determinants of production enterprise selection in US agriculture. Australian J. Agric and Resour Ec. 55 (2011), 3 (July) : 411-428.

[13] Greaker, M and K. E. Rosendahl. 2009. Environmental policy with upstream pollution abatement technology firms. J. Envir Ec & Manag. 56 (2008), 3 (November) : 246-259.

[14] Harlia, E., E.T. Marlina., A. Firman and A. Fitriani. 2012. Utilization of Dairy Cattle and Beef Cattle Livestock Waste as Biogas Alternative Energy Sources in Sumedang Regency. Proceedings of the National Seminar on Sustainable Livestock 4, Farmers Agribusiness Innovation for Food Security. Animal Husbandry Faculty of Padjadjaran University. Bandung *(in Indonesian).*

[15] Hartono, B. 2012. Roles of Regional Carrying Capacity on Madura Cattle Business Development. Journal of Development Economics. Vol. 13. No.2, December 2012. p316-326 *(in Indonesian).*

[16] Haryanto, B. 2009. Cattle Feed Technology Innovation in Waste-Free Crops-Livestock Integration Systems in Supporting Efforts to Increase Meat Production. Livestock Research and Development Centre. Development of Agricultural Innovation 2(3), 2009: 163-176 *(in Indonesian).*

[17] Hermawan, A and B. Utomo. 2012. Ruminant Cattle Roles in the Development of Conservation Farming Systems at Upstream Watershed Dry Land. Proceedings of the National Seminar on Sustainable Livestock 4, Farmers Agribusiness Innovation for Food Security. Animal Husbandry Faculty, Padjadjaran University. Bandung *(in Indonesian)*

[18] Herrick, J.E. V. C. Lessard, K. E. Spaeth, P. L. Shaver, R. S. Dayton, D. A. Pyke, L. Jolley, and J. J. Goebel. 2010. National Ecosystem Assessments Supported by Scientific and Local Knowledge. J. Frontiers in Ecology and the Environment. Volume 8, Issue 8 (October 2010). p: 403–408. 12/12/2011.

[19] Kim, E-H and T.P. Lyon. 2011. Strategic environmental disclosure: Evidence from the DOE's voluntary greenhouse gas registry. J. Envir Ec & Manag. 61 (2011), 3 (May) : 311-326.

[20] Kiswanto., A. Probowo and Widyantoro. 2004. Structural Transformation of Beef Cattle Fattening in Central Java. Proceedings of Seminar, Systems and Institution of Crops-Cattle Farming. Agency for Agricultural Research and Development Agency of Agricultural Department *(in Indonesian)*

[21] Leach, A. J. 2009. The welfare implications of climate change policy. J. Envir Ec & Manag. 57 (2009), 2 (March) : 151-165.Herrick, J.E. V. C. Lessard, K. E. Spaeth, P. L. Shaver, R. S. Dayton, D. A. Pyke, L. Jolley, and J. J. Goebel. 2010. National Ecosystem Assessments Supported by Scientific and Local Knowledge. J. Frontiers in Ecology and the Environment. Volume 8, Issue 8 (October 2010). p: 403–408. 12/12/2011.

[22] Mulyani, A., S. Ritung and I. Las. 2011. Potential and Availability of Land Resources to Support Food Security. Journal of Agricultural Research and Development Agency. Volume 30 (2), 2011. p: 73-80. 30/12/2011 *(in Indonesian).*

[23] Mulyo, I.T., S. Marzuki and S.I. Santoso. 2012. Analysis of Government Policy Regarding Beef Cattle Cultivation in Semarang Regency. Animal Agriculture Journal. Vol. 1 No 2. 2012. p. 226-277.

[24] Pratiwi, A.V., I. Akbar., D. Meliandasari., I.K. Pratiwi., H.L.M. Rini and A. Purnomoadi. 2012. Urine can Accelerate Production of Methane Gas from Stool Fermented with Lactic Acid Bacteria. Proceedings of the National Seminar on Sustainable Livestock 4, Farmers Agribusiness Innovation for Food Security. Animal Husbandry Faculty, Padjadjaran University. Bandung *(in Indonesian).*

[25] Rahim, S.E. 2006. Soil Erosion Control. Within the Framework of Environmental Conservation. Bumi Akasara, Jakarta *(in Indonesian).*

[26] Salendu, A.H.S., Maryunani., Soemarsono and B. Polii. 2012. Integration of Cattle-Coconut in South Minahasa Regency. Proceeding : The 2nd International Seminar on Animal Industry 2012 (ISAI) Faculty of Animal Science Bogor Agricultural University.

[27] Salendu, A.H.S. 2012. Management perspective of Coconut-Cattle Agroecosystem in South Minahasa. Doctoral Dissertation. Post Graduate Program of Brawijaya University, Malang *(in Indonesian).*

[28] Singh, S., R.K. Nanwal. 2010. Curricula Change and Human Resource Development for Integrated Farming Systems in Semi-Arid Tropical Conditions. Chaudhary Charan Singh Hayana Agricultural University, Hisar, India.

[29] Soedjana, T.D. 2007. Crop-Livestock Integrated Farming Systems as Farmers' Response on Risk Factors. Journal of Agricultural Research and Development. Volume 26 (2), 2007. p: 82-87. 29/12/2011*(in Indonesian)*.

[30] Sutanto, S. 2002. Organic farming. Towards Sustainable and Alternative Agriculture. Kanisius Publisher. Jogyakarta *(in Indonesian)*.

[31] Warr, P and A. A. Yusuf. 2011. Reducing Indonesia's deforestation-based greenhouse. gas emissions. Australian J. Agric and Resour Ec. 55 (2011), 3 (July) : 297-321.

[32] Wibowo, B and Sumanto. 2012. Cage Waste Treatment Roles in the Beef Cattle Intensive Breeding Business in Subang. Proceedings of the National Seminar on Sustainable Livestock 4, Farmers Agribusiness Innovation for Food Security. Animal Husbandry Faculty of Padjadjaran University. Bandung *(in Indonesian)*.

Appendix 1. Analysis Results of Effective Livestock Development Potential and Land Carrying Capacity Index under Coconuts in Lolayan Subdistrict

Table 1: Analysis Results of maximum potential of land resources *(PMSL)*

Coefficients/Variables	Lolayan Subdistrict
a	0.80
LG (Coconut land Area) (Ha)	3308.14
b	0,50
PR (Grassland Area)	150.42
c	1.20
R (Swamp Area)	5.61
PMSL	2728.45

Table 2: Analysis Results of Cattle Population Increase Capacity based on Land Resources *(KPPTR(SL))*

Coefficients/Variables	Lolayan Subdistrict
PMSL	2728.45
POPRIL	1177.00
KPPTR (SL)	1551.45

Table 3: Analysis Results of Maximum Potential Based on Farmer Household Heads *(PMKK)*

Coefficients/Variables	Lolayan Subdistrict
d	3.00
KK	6223.00
PMKK	18669.00

Table 4: Analysis Results of Cattle Population Increase Capacity Based on Maximum Potential Difference and Real Population *(KPPTR(KK))*

Coefficients/Variables	Lolayan Subdistrict
PMKK	18669.00
POPRIL	1177.00
KPPTR(KK)	17492.00

Table 5: Analysis Results of Carrying Capacity Index *(IDD)*

Coefficients/Variables	Lolayan Subdistrict
PMSL	2728.45
k	1.14
POPRIL	1177.00
TK (kxPOPRIL)	1341.78
IDD	2.03