V. CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

1. Reasonable factors of forage availability considering the ecology, economy and social aspect was described by causal loop and input-output diagram. It has been identified the factors that related to the forage availability; Dairy cattle population related to the how many cattle that need to be fed, land area for forage resulted, and population affected the land use for residential, milk production and milk revenue. Thus, there were four submodel formulated; Population, dairy cattle population, economic and forage availability.

The model behavior showed the amount of population as 207,025 ppl in the end of year simulation (20 years), 15,392 AU for dairy cattle population, 48,722,025 litter for milk production, Rp. 157,372,140,750,00 for the revenue from milk yield, 40,484,52 ton for forage production and 165,492,73 ton for forage requirement. It was concluded that the amount of dairy cattle population excessive in Lembang due to the resources for feed as the impact of higher population. The amount of forage production was not enough for filling the forage requirement for the diet of dairy cattle.

There were three scenarios used as the intervention of model’s sensitivity for forage availability. The resulted showed the nearly closed forage for dairy cattle requirement by using the scenario 1 subsequently as the impact of enlargement of foraging area in Lembang. Scenario 2 filled only 23.22% of forage requirement while scenario 3 showed lower percentage that only filled 19.46% of totally forage requirement. The lower amount of forage production on scenario 2 and 3 as the impact of the higher number of population in Lembang.

The spatial analysis was used to analyze ecological suitability for forage management. It was obtained the Land suitability into 4 classes; highly suitable (S1) for 1,150,71 Ha, moderate suitable (S2) for 4,390,07 Ha, marginally suitable (S3) for 881,06 Ha, not suitable (N) for 1,115,17 Ha and it was found constrain (C) for 2,211,22 Ha that became the restriction for forage management. The GIS analysis related with the actual suitability for forage management. It was done by combined The Governor Direction Map into a
single layer. Land suitability was physically divided into 4 classes; highly suitable (S1) for 1.055,31 Ha, moderate suitable (S2) for 4.377,98 Ha, marginally suitable (S3) for 1.108,97 Ha, not suitable (N) for 1.105,1 Ha and it was found constrain (C) for 2.100,26 Ha

5.2. RECOMMENDATION

1. The result of this research showed the dynamic forage availability in Lembang. Based on this calculation showed there were inadequate amount of forage as impact of several factors such as dairy cattle population, arable land area for foraging, dairy cattle population etc. The government should be focused on these factors to in order to improve the forage for the dairy cattle. Furthermore, the milk production will be produced more.

2. Based on the calculation of dynamic model, the dairy cattle in Lembang has been exceeded, therefore it is need to considering Lembang as the central of dairy farming in West Java. Thus, the development dairy farms in Lembang should be focused on the resources for feed.

3. Based on the scenario that used, it suggested highly to considering the scenario 1 for dairy cattle population, milk production, and the revenue and forage requirement. However the scenario 1 showed better result compared with scenario 2 and 3 hence the sustainability of dairy farming in Lembang is emphasized on this scenario. The improving of forage production can be seen on scenario 2 and 3.

4. There are some villages that can be improved for forage production such as Suntenjaya, Cibodas and Cikahuripan. The result of this research recommended and helped the decision-makers in local government for determining the direction of agriculture policy in forage availability in Lembang Sub-district, West Java in particular regional development planning process, especially in calculating the carrying capacities of a region in providing forage. This is the beginning research; the model is really depending on the data input and process inside. Regarding to the conditions, it need to be improved the model in the future.