THE POTENTIAL OF SILVOPASTURAL IN GUNUNG WALAT EDUCATIONAL FOREST

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Introduction

Forestry and livestock are not only interconnected but also inseparable (Nair, 1989). On one hand, the interaction and connection among forest, ecosystem, food and fodder, also needs of wood and on the other hand for livestock fodder have been known globally as an inseparable living environment.

Gunung Walat Educational Forest (GWEF) in the era of Bogor Agricultural University (BAU) autonomy is required to play an important role to contribute benefits in many aspects, especially in economic and social aspects both for manager and the local society. All of the potential, both inside and outside of the forest must be wholly explored. Fodder is one of big potency of GWEF, unfortunately up to now yet attracted any party interested in doing research and developing the potency of fodder plants.

Methodology

The collection of primer data was carried out by observation technique with direct monitoring. The interview technique was conducted directly to 30 cultivators and farmers nearby GWEF. The interview was done free but structured, while observation to the fodder plants was conducted by using sample plot of 0.01 Ha in a 100 m^2 situated on 5 different places close to the stands of Agathis (*Agathis dammara*), Puspa (*Schima wallichii*) and Pinus (*Pinus merkusii*) by purposive sampling. Basic of the plot pool is a representation of the planted area compared amongst Pinus, Puspa, and Agathis stands. For the plantation of grass, plot of 9 m^2 meters was made and the planting distance was 20 x 20 cm^2. In order to know the field capacity of GWEF, separation and weighing methods were employed. This was done by separating fodder plants that have already been cut into small pieces based on its components; each component is weighed and measured and the dried material was weighed 5 days later.

Results and Discussion

The livestock breeding by local people of GWEF was still traditional and the way to feed livestock with fodder plants grown in GWEF has yet been known. The collection of grass and legumes was represented by addressing grass and nature legumes (GNL). GNL under the Agathis stands had a field capacity of 2 ruminants/ha/year, while GNL under the Pinus I and II stands had a field capacity of 4 ruminants/ha/year. GNL under Puspa I and II stands had a field capacity of 4 ruminants/ha/year. The field capacity of *Brachiaria decumbers* grass was 8 ruminants/ha/year and for *Brachiaria humidicola* grass is 7 ruminants/ha/year. It could be identified that the plot where

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Jukut Raket Bulu (*Oplismenus compositus*), Jukut Pahit (*Axonopus compressus*) and Jukut Gigirinting (*Cynodon dactylon*)grown were mostly grass dominating area. Legumes dominated the area were Paci-Paci (*Hedyotis vestita*), Balakacide (*Eupatorium inulifolium*), Rane (*Selaginella plana*). The total field capacity of GWEF for GNL was 1436 ruminats/359 ha/year, for *B. decumbens* grass is 2872 ruminats/359 ha/year and 2513 ruminants/359 ha/ year for *B. humidicola* grass.

The Added Value of Field Capacity Potential/AVFCP (ruminants/ha/ year) in GWEF for nature grass, *B. decumbens* grass, *B. humidicola* grass were 950 ruminants/ 359 ha/year, 2386 ruminants/ 359 ha/year, 2027 ruminants/ 359 ha/year respectively, with the total AVFCP was 5363 ruminants/359ha/year. For the delineated area of GWEF for wild grass, *B. decumbens* and *B. humidicola* were 314 ruminants/200ha/year, 1114 ruminants/200 ha/year, 914 ruminants/ 200 ha/year respectively, with the total AVFCP was 2342 ruminants/ 200 ha/year.

AVFCP, economically for the GWEF people could be simplified as a selling result of goats /sheep. The price (in the amount of 81.5 % of average weight of goats and sheep around GWEF, that was 13.24 Kg) of wild grass, *B. decumbens* grass, and *B. humidicola* were Rp 301,872,000,- ;Rp 758,175,360,- ; and Rp 644,099,520,- respectively. For the delineated area of GWEF the profit for wild grass, *B. decumbens* grass and *B. humidicola* in a row were Rp 99,776,640,- ; Rp 353,984,640,- ; Rp 290,432,640,-.

Then a regression model could be obtained as :
$Y = 4.44 - 0.095 X_1 + 0.0215 X_2 + 0.731 X_3 + 1.6 X_4 + 0.0092 X_5 - 0.065 X_6 + 0.316 X_7 - 1.62 X_8$.

Y is the amount of grass and legumes, influenced by variable of age (X_1), duration of breeding (X_2), amount of livestock (X_3), time of cutting grass (X_4), selling price (X_5), amount of family members (X_6), weight of livestock (X7) and Education (X8).
The model is significant in determining the amount of grass and legumes.

The coefficient of determination was 67.9 %. This could mean that 67.9 % of the diversity of the amount of grass and legumes could be explained by the characteristic of cultivators and about 32.1 % was explained by other factors. T-Test explained that the variable of selling price, education, livestock weight, amount of family members, age of breeder and breeding duration were insignificant to the amount of grass and legumes fed to the livestock, whereas the amount of livestock and time of grass cutting were significant to the amount of grass and legumes needed. The nutrition content of *B. humidicola* and *B. decumbens* were higher than wild grass.

If a farmer had 1 ha land and was planted by cassava, the harvest would be once in a year resulted in Rp 112,500,- x 20 = Rp 2,250,000,-. The profit obtained in two years will be Rp 4,500,000,-. But if a farmer had 1 ha land and was planted by *B. decumbens* and *B. humidicola*, 8 goats / sheep would be able to be fed, in two years they will bear three times. Assuming all of the female bear two kid in every birth, then in two years there will be 8 x 3 x 2 = 48 young goats / sheep. Supposing the price of a young goat is Rp 150,000,-, a farmer can earn Rp 150,000,- x 48 = Rp 7,200,000,-.

Conclusionss

The combination of wild grass and legumes, together with planted grass of *B. decumbens* and *B. humodicola* is very profitable. Well managed silvopasture in GWEF potential to contribute economical benefit for the local people and GWEF itself.

References

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