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## Potential benefits of agroforestry systems integrating livestock activities in Guadeloupe

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## Agroforestry systems including livestock activities in Guadeloupe (FWI).

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The forest land reserve in Guadeloupe is 71,500 ha, representing 44% of the total land area. Forests have traditionally contributed to the economic development of the territory until the post-war bipolarization of the Guadeloupean "sugar cane/banana". The value-enhancement of Guadeloupe's private forests (48% of the total) is a major challenge for the territory in terms of agroecological transition.

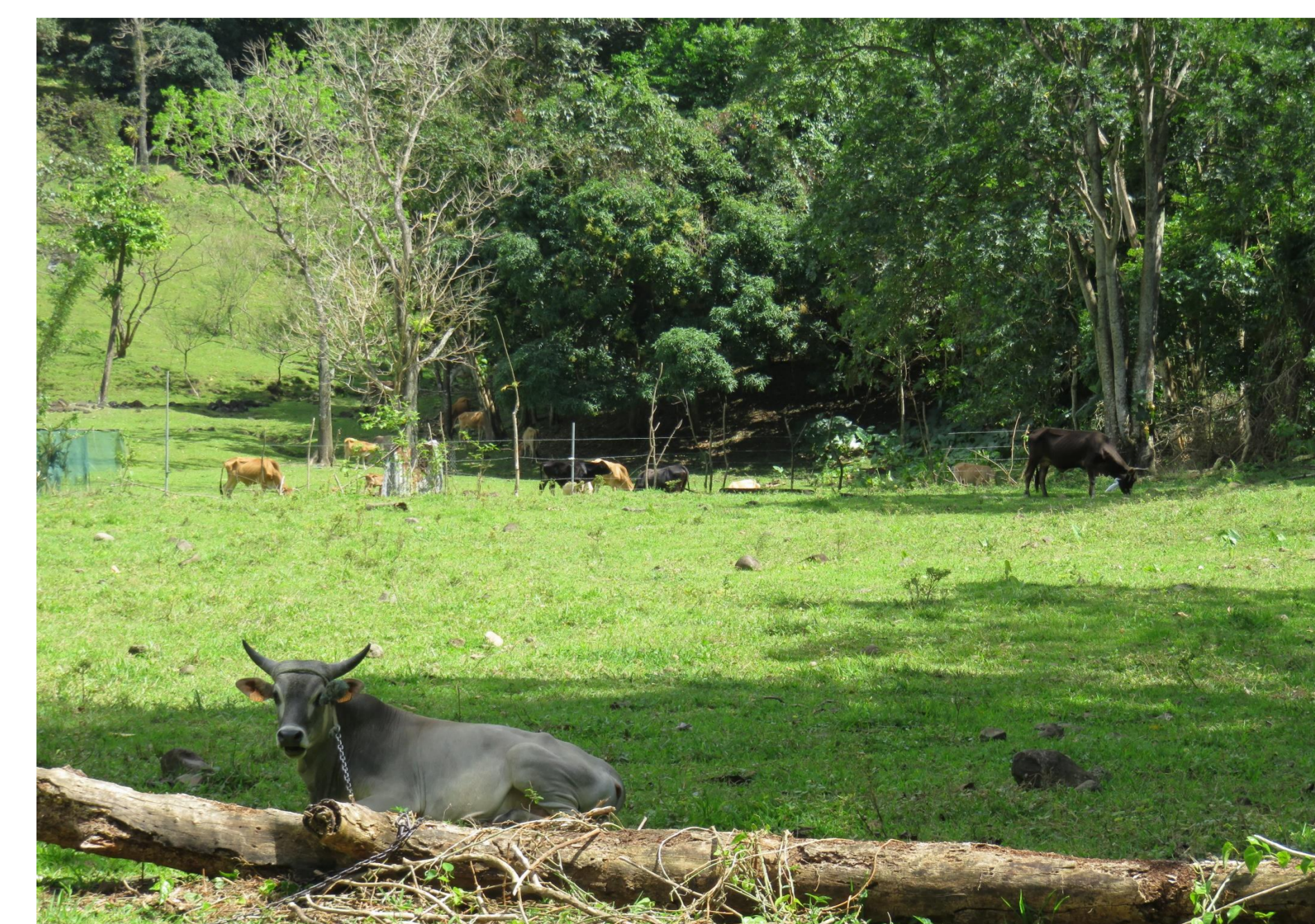
In many Latin-America regions, agroforestry systems (AFS) include a significant proportion of livestock but very few do in Guadeloupe (F.W.I.). A great diversity of forests can be observed according to the rainfall regime and the altitude, with a gradient of xerophilic, mesophilic and hygrophilic forests. In the driest zone the dominant type being semi-deciduous forest. In this study, AFS including livestock activities were classified through semi-open interviews (n = 50) based on two dimensions, the agricultural region and the farmer's main production strategy.

Human dimension, infrastructural and functional characteristics of the agroforestry systems with animals according to areas,

Main type and area	Densely wooded mid-altitude area	Mid-wooded piedmont area	More or less shrubby plains	Total
<b>Main status</b>				
Number of farmers	21	17	12	50
% Multi-active farmers	90.0	66.7	70.0	76.9
% family unit	30.0	46.7	33.0	37.5
Family workers/farm (n)	1.5	1.1	1.4	1.3
<b>Main characteristics</b>				
Number of farmers	15	15	12	42
Total area (ha)	8.1	5.3	15.2	9.0
Number of sub-unit/farm	4.67	3.27	4.50	4.14
Food crop sub unit (n)	2.67	2.57	2.75	2.70
<b>Animals</b> →				
<b>Main practices (% of farmers answering)</b>				
- For valorisation				
marketing	88.2	70.0	75.0	78.0
self-consumption	54.0	48.1	46.5	50.0
other functions <sup>a</sup>	18.9	15.8	11.0	16.2
- For technical tasks				
traditional know-how	15.3	19.8	16.2	17.2
few interference with life cycle	7.2	25.5	16.6	16.4
<b>- In particular<sup>b</sup></b>				
crop by-products	85.7	85.7	81.0	84.9
animal manure	8.1	23.8	25.0	18.0
pollination	21.6 <sup>c</sup>		No Answer	

Category	Animal Species	Range of variation
Large herbivores	Cattle	2 to 90
	Horse or donkey	2 to 14
Small ruminants	Goat	3 to 20
	Sheep	5 to 19
Pigs	Pigs	1 to 15
Farmyard animals	Poultry	10 to 15000
	Rabbits	2 rabbits to 20 nursing boxes
Apiculture	Bees	4 to 270 beehives
Acquaculture and crabs	Acquaculture	Not assessed
	Crabs	Not assessed

On average, AFS are family farming systems (more than 30%) and the percent of farmers with multi-activities is high (77%). At first glance, beekeeping is the most widespread (most recognized) activity in wooded areas. But there is evidence for the presence of other animals and breeding activities. Mixed tree-crop-livestock systems are very frequent, with 1/3rd of the sub-units devoted to animal husbandry. Farmers preferably raise small ruminants, backyard animals and large herbivores (20 to 25% of answers each), plus to a lesser extent, raise pigs and keep bees (12% each). Mixed animal units exist (50%) with between two and six species. More than 80% of farmers use their farm resources (pastures, natural fodder trees or crop by-products) to feed their animals. Even though self-consumption remains widespread (50% of responses), 80% of the farmers want to give a more economic orientation to their activities. The other responses (16%) concerned socio-cultural functions.



This mixed tree-crop-livestock system is a prerequisite for agroecological transition. It provides many ecosystem services (Abst,Nunc 226-9Dd9-2012).

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