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Acacia senegal **fallow, a tool to restore Sudano-Sahelian landscapes**

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Background: In the Sudanian region of North Cameroon, population growth has led to reduced fallow periods, soil fertility and trees (Peltier *et al*., 1993). Since 1984, CIRAD, Irad and Sodecoton have been testing techniques for planting tree legumes to restore soil fertility (Harmand *et al*., 2017). A 15-year-old *A. senegal* plot was harvested in 2011.It produced 1200 kg/ha of gum arabic for 8 years (750 €/ha) and 40 m3/ha of fuel-wood for 15 years (1100 €/ha) (D'Andous *et al*., 2013).
Aims: After *A. senegal* were harvested, we studied the evolution of chemical soil properties and the production of successive crops.
Mat. & methods: On sandy ferruginous acidic soil, rainfall 1000 mm/year, the farmer planted successive crops of maize, cotton and groundnuts (2011-2013). In 2011 & 2015, the soil was analyzed (composite) on 2 plots of 12 x12 m after *A. senegal* (Post-fallow = Pf) and on 2 control plots continuously cultivated (Cc).
Results: Crop production was much higher for all 3 years and soil chemical properties (C, N, pH, CEC) were higher in Pf than in Cc (Table 1).
Conclusion: Further studies are needed to determine for how long crop cultivation remains profitable (Dubiez et al. 2018). This will pave the way for farm and landscape management including plots planted with tree legumes, to improve biodiversity, carbon storage, wood energy production, food and cash crops of the territories, while limiting population migration and the destruction of the last Sudanese natural ecosystems.

Year of Cultivation	Crop	Yield (kg ha^{-1})		Soil analysis							
				C (g kg^{-1})		N (g kg^{-1})		pH in water		CEC (cmolc kg^{-1})	
		Cc	Pf	Cc	Pf	Cc	Pf	Cc	Pf	Cc	Pf
2011	Corn	2582	6600	2.7	4.4	0.2	0.3	5.8	7.5	1.1	2.3
2012	Cotton	592	1647								
2013	Peanuts	461	838								
2015				2.5	4.7	0.2	0.4	6.1	6.7	1.2	2.3

Table 1: Crop production and soil analysis at a depth of 0-20 cm in two control continuously cultivated plots (Cc) and in two plots after the fallow in 2011 of a 15-year-old A. senegal (Pf)

Keywords: Improved fallow, Acacia senegal, Cameroon, Soil fertility, Restoration.

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