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## Ecology and Socio-Economic Importance of Shortened Fallows in Southern Cameroon — Productivity of Selected High-Value Species

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### Abstract

The major indigenous key productive fruit trees identified by farmers throughout the humid forest zone of southern Cameroon include *Coula edulis*, *Dacryodes edulis*, *Irvingia gabonensis* and *Ricinodendron heudelotii*. A study was undertaken to characterise the phenology of non-timber forest species in a fallow farming system of southern Cameroon, and to examine the phenological patterns in relation to land use. Leaf flushing, flowering and fruiting phenology of each study species were investigated and patterns of fruit production monitored. Results from this study will lead to recommendations for the design of appropriate conservation and management decisions and plans that will improve the productivity and guarantee the sustainability of shortened fallows in the area. Three land use types were defined: short fallows (of less than 7 years old), medium-term fallows (of 7–10 years old) and long-term fallows (of more than 10 years old). *Coula edulis*, *Dacryodes edulis*, *Irvingia gabonensis* and *Ricinodendron heudelotii* were recorded at very low density values in fallow lands of the study area (< 10 individuals of more than 10 cm dbh), suggesting the need to develop preferential management of regeneration for these species. Apart from leaf flushing, flowering and fruiting phenology of these species were seasonal, with irregular flowering/fruiting observed for some *D. edulis* and *I. gabonensis* individuals over the two years of monitoring. Fruiting was concentrated between July and October (and up to January for *R. heudelotii*), coinciding with the rainy season. An individual of *C. edulis*, *D. edulis*, *I. gabonensis* and *R. heudelotii* produced, on average, nearly 236 fruits (9.6 kg fresh weight in 2001, 335 fruits and 11 kg in 2002), 235 fruits (12.5 kg in 2001 and 801 fruits, 51 kg in 2002), 547 fruits (72 kg in 2001 and more than 2002 fruits, 133 kg in 2002), 2018 fruits (72 kg in 2001), respectively. Regression analyses showed that tree size parameters are correlated with fruit production for some species, but generally, do not explain an important part of the production data of the study species ( $r^2 < 60\%$ ).

**Keywords:** Fallow, non-timber forest products, phenology