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The Consequences of Defoliation of Gum Arabic Tree (*Acacia senegal*) by Tree Locust (*Anacridium melanorhodon melanorhodon*) for the Gum Producers: A Case-Study in North Kordofan State, Sudan

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Abstract

Gum Arabic is one of the main crops produced in the traditional rain-fed agricultural sector of Sudan. It is a non-timber forest product harvested from gum Arabic tree (mainly *Acacia senegal* var. *senegal*). Gum Arabic provides on average 12% of the gross domestic product of the country and accounts for about 15 - 10% of the income of the gum producers and other farmers in the gum belt across Sudan, respectively.

The most serious pest of gum Arabic tree is the tree locust *Anacridium melanorhodon melanorhodon* Walker. A study conducted in North Kordofan State focused on the estimation of the degree of defoliation by outbreaks of the tree locust and on socio-economic consequences for local gum Arabic producers. Moreover the study tries to cover the reactions of the local gum producers on tree locust outbreaks and the possibilities for compensation of the (financial) losses.

Defoliation of gum Arabic tree by the pest resulted in a loss of yield connected with a reduction of the benefits to the local communities practicing gum production as one of the main activities. The study showed highly significant differences in crop yield before (183.88 kg ha⁻¹) and after (105.73 kg ha⁻¹) tree locust outbreak. The pest reduced the per hectare benefits from gum production from 292.6 to minus 21.2 Sudanese Pound (SDG). In addition, tree locust outbreak leads to a delay of the tree tapping time from October to January/February due to the effects of the pest on foliage of gum Arabic tree.

The study was considered to be base not only for policy makers to avoid the economical losses but also for more research work concerning the ecology of the insect and the strategies of control.

Keywords: *Acacia senegal*, gum arabic, tree locust, *Anacridium* spp.