



A Systematic Assessment of Paddy Losses at Various Stages from Harvest to Storage in the State of Goa

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ABSTRACT

Paddy, the main field crop of Goa, is not profitable due to small and fragmented landholdings, inaccessible fields, lack of farm work force and mechanization. A study was conducted to assess the post-harvest practices and losses of paddy in Goa using the methodology developed by AICRP-PHT, ICAR to estimate losses by enquiry and actual observation methods. The study indicated that traditional methods of manual harvesting, threshing, winnowing, sun-drying on road side, parboiling in brass pots and storage in woven polybags with *Vitex negundo* (lingur leaves) or neem leaves for unprocessed paddy and boric powder for milled rice, were practiced in the state during 2011-13 with a slight shift towards mechanization during 2013-15. Most of the rice mills in Goa needed modernization and product diversification. Data indicated total losses of 19.26 ± 14.63 % and 11.31 ± 12.09 % by enquiry, and 5.92 ± 2.62 % and 9.04 ± 9.74 % (excluding parboiling by observation) in various unit operations of paddy production in the year 2011-13 and 2013-15, respectively. No on-farm value addition by farmers was practiced. Interventions in terms of infrastructure and mechanization, sensitization through trainings on modern methods of harvesting, processing, value addition, and improved storage methods are required to reduce the postharvest losses in Goa, and ensure better profit margin for farmers.

Agriculture with ₹ 188.96 crores GSDP from crops alone is the second most important profession, next to tourism (GSDP of ₹ 543.41 crores) in the State of Goa since the cancellation of all mining leases (GSDP of ₹ 108.58 crores) from 2018-19 (Anon., 2019a; Anon., 2020). The state policy makers are trying to attract its population towards agriculture through various remunerative schemes and incentives. Disappearing farm manpower and dwindling farm returns, however, have made the profession less attractive.

Paddy is the main field crop and staple food of Goa. It is cultivated in total area of 36,384 ha under three unique land profiles viz. *morod* or lateritic uplands (16.67 % of total paddy area), *kher* or sandy midlands (33.33 % of total paddy area), and *khazan* or salt affected coastal lowlands (50 % of total paddy area in

the state) (NABARD, 2019a,b). It is being cultivated both in *Kharif* (*Sod*) and *Rabi* (*Vaigon*) seasons, in approximately 67 % and 33 % of the total paddy area, respectively. The average paddy productivity of *Rabi* season is relatively higher ($2,759 \text{ kg.ha}^{-1}$) as compared to *Kharif* season ($2,719 \text{ kg.ha}^{-1}$) (NABARD, 2019a, b; Anon., 2019a). Paddy area has been rapidly falling as the profits in paddy farming are dwindling due to high labour cost, lack of mechanization and reducing yields of the traditional varieties (Anon., 2012; Anon., 2019b). Farmers adopting new varieties sell it as unprocessed paddy, or take it to neighbouring states of Karnataka or Maharashtra for milling, thus losing their profit margins (Gupta *et al.*, 2013). The post-harvest losses in paddy further reduce the profit of the farmers (Kiaya, 2014).

Paddy crop undergoes a series of operations such