

## **A Sustainable Approach of Harnessing the Behavioral Insights in Pesticide Management in Paddy Production System of Western Odisha: A Nudge Theory Approach**

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An effort has been undertaken to measure the effects of non-monetary interventions imposed on the paddy production system, specifically assessing their impact on pesticide usage, expenses, and overall returns. The selection of the research area was deliberate, with a focus on the Western undulating zone (WUZ) in Odisha, a significant paddy-producing region within the state. Within the WUZ, two districts, Nuapada and Kalahandi, were chosen purposively. Kalahandi district was specifically selected for the following reasons: (1) It is a prominent district in the region, comprising 13 blocks, and is often referred to as the "rice bowl" of the state. (2) Approximately 92.46 percent of the cultivated area in this district is dedicated to paddy cultivation. (3) The region experiences frequent outbreaks of Brown Planthopper (BPH) and other paddy pests due to its favorable climate, characterized by extreme heat, moisture, and a sub-humid environment, which is conducive to insect pest proliferation. And (4) There is a notable pattern of farmers engaging in indiscriminate pesticide usage for paddy pest management. Nudge techniques help in altering the behavior in areas related to food consumption (e.g., healthy diet), but the effectiveness of interventions using nudge techniques to change food waste behaviours still remains unclear, despite a growing body of research. In this study selected farmers from two different villages were surveyed regarding pesticide use pattern for which visual and cognitive nudge were given as interventions to the treatment group of farmers. It acted as drivers of change, in altering the farmers' production behaviour in terms of proper resource utilization. Pesticide use was lowered by roughly 549g a.i./ha, lowering the variable cost by ₹3,111 per hectare. The intervention has resulted in an increase of 11.10 quintals/ha in paddy yield. Improved net returns of ₹23,595/ha were achieved as a result of increased yield and lower variable costs. The findings of the study thus conclude that intervention in the form of cognitive and visual nudge is definitely effective in bringing the desirable changes in decision making ability of the farmers.

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