


An Analysis of Safety Practices of Farmers in Odisha (India) for Sustainable Agriculture

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ABSTRACT

An in-depth review of literature was done in this study which was further followed by consultation and discussion with experts and farmers in the agricultural sectors of Odisha (India) in view of the adoptability perception and behaviours of farmers towards the health and safety practices. Then, a strengths, weaknesses, opportunities, and threats (SWOT) analysis was employed in order to evaluate the current agricultural safety practices by the farmers and its impact for a sustainable agriculture. Further, on the basis of the data and information obtained from the farmers as well as the experts, the major barriers in context with the sustainability indicators (social, environmental, and economic) for the adoption of health and safety practices were obtained followed by the use of the Fuzzy-COPRAS method to rank the barriers in order of their preferences.

KEYWORDS

Agriculture, Barriers, Fuzzy-COPRAS, Odisha, Safety Practices, SWOT

1. INTRODUCTION

There has been a growing demand for sustainable agriculture in response to the ill-hazards due to agricultural practices. Although, a number of health and safety practices have been developed to protect the farmers from the adverse impacts in agricultural sectors, but because of some constraints as well as barriers, the practices are still found of unused by many of the agricultural workers. One of the major goals of sustainable agricultural systems is decreasing the ill-hazards in agriculture. A good agricultural safety practice is one approach which deals with these issues including the protection of human-health and the environment. Moreover, a number of side effects from the use of synthetic-fertilizers and other agro-chemicals have been found to be utilized in the agricultural sectors in India. Thus, there is a need to address the present issues related to the safety practices in the agricultural sectors. In order to achieve sustainable agriculture, an appropriate consideration to the economic, environmental as well as social factors in the agricultural sectors in India need to be provided and this is achievable through proper and adequate health & safety practices in all aspects of farming. The

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purpose of this study was to investigate the major barriers to application of good agricultural safety practices in the agricultural sectors of Odisha in India for its sustainability.

A number of studies have been carried-out regarding the uses of personal protective equipments and devices as well as on the ill-hazards with regard to the agricultural sectors. For instance, the agro-chemicals utilization was adopted in order to deal with the issues of deficient food-supplies to meet the ever growing population needs in the nation. A number of side effects have been recorded from the use of synthetic fertilizers as well as other agro-chemicals that usually cause water-pollution as a result of leaching and washing away of such agro-chemicals in rivers by erosions (Smil, 2001). It has been revealed by different studies that by the sustainable agriculture, through various initiatives the present as well as future food-demands can be fulfilled (DFID, 2004; FAO, 2013; Godfray et al., 2010; Oyo and Kalema, 2016). For example, the initiatives were as follows: tillage-reductions (Lal, 1991), crops-rotations (Caporali and Onnis, 1992), managing irrigations (Tilman et al., 2002), integral management of pests (Gurr et al., 2003), nutrients-management, enhancement of wild-habitats, genetic-resistance enhancements, farm-enterprises diversifications, and community-wellbeing improvements (Jackson-Smith, 2010). Geer et al. (2006) have revealed of a higher risk perception of workers owing to a poor-fit & frequency of replacement of personal protective equipment, and cross-contamination by workforce moving into working-zones. In addition to the normal farm level risks, the adolescents may face greater risks by avoiding the use of personal protective equipment or having lack of access to protective machineries. Therefore, the adolescents and their parents should be advised by the health-care providers regarding reduction of risks, and mainly on the personal protective equipment utilizations (Reed et al., 2006). It was suggested to support farmers to invest in physical-safety on the farm and there was a need of evidences of any safety intervention to be a sound health-management as well as economic-investment choice. The farmers were found of neglecting the wear of their hearing protections, due to inconveniences, discomforts as these created new hazards by restricting communication with others (Gates and Jones, 2007; McCullagh and Robertson, 2009). However, Kaustell et al. (2011) have stated that the indications of long-lasting or effectiveness are limited within the literature for such interventions. Organic farming is a multi-functional system that reduces the economic, environmental as well as social functions. Through organic farming the multi-functional benefits include contribution to livelihood improvements, food-security, flexibility to climate-changes, increasing in long run yields, minimizing financial-risks, market-opportunities creation, developing health as well as the environment, hostility to desertification among other several advantages (IFOAM, 2007). MacFarlane et al. (2008) have reported of 10-40% of farmers usually of not at all using personal protective equipment. Kaustell et al. (2011) have used a collaborative interpretation method and farm interviews for identifying factors affecting the adoption as well as implementation of safety information. The three major barriers were found as personal farmers' characteristics, limited resources for safety-improvements, and slower incremental-evolution of the physical farm-environment with older & hazardous environments remaining along with latest & safer improvements. The agro-based industrial sectors have significant role in the financial system to foster on food-security and basic-needs of human-beings. The occurrence of financial worries and stressed on the farm was associated with the safety assessments made by farmers in Canada (Hagel et al., 2013). Agribusiness has environmental impacts because of land-clearing, leaving-space discontinuities, biological-communities change, soil-disintegration, desertification, eutrophication, and biodiversity-losses (Conway and Barbier, 2013; Fan et al., 2012). The ecosystems get contaminated (Conway and Pretty, 2013; Diaz and Rosenberg, 2008) and human-health gets affected by the use of agrochemicals (WHO, 1996) that include fertilizers and pesticides. Similarly, the agricultural sectors are subjected to adverse environmental-changes with respect to its degree and productivity throughout the world (Battisti and Naylor, 2009; Turrall et al., 2011). Sustainability primarily includes an incorporated and a far reaching way for the well-being to deal with environmental, social, and economic process (Sathaye et al., 2007; Tracey and Anne, 2008) and it requires the support of various stakeholders and point-of-views to build up an advancement through a shared activity-plan (Kates et al., 2005). In

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