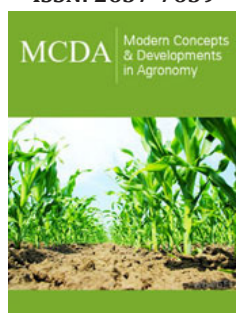


Knowledge and Perception Studies as Veritable Tools for Understanding Pest Control Behaviour among Stakeholders in the Agricultural Sector

ISSN: 2637-7659



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Submission:  October 19, 2023

Published:  December 14, 2023

Volume 13 - Issue 4

How to cite this article: Owajaiye OB*, Akinola Soji B and Ayembo EO. Knowledge and Perception Studies as Veritable Tools for Understanding Pest Control Behaviour among Stakeholders in the Agricultural Sector. Mod Concep Dev Agrono. 13(4). MCDA. 000818. 2023. DOI: [10.31031/MCDA.2023.13.000818](https://doi.org/10.31031/MCDA.2023.13.000818)

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Abstract

There have been numerous attempts at understanding stakeholders' behaviour in relation to their pest control behaviours in Nigeria. These efforts have been hinged on the fact that though the country possesses competitive advantage in the production of a number of crops, the rewards that would have accrued have been destroyed by pest control practices adopted by majority of these stakeholders. These practices centre on the use of synthetic pesticides that have led to deaths from food poisoning, rejection of the country's commodities in the international market and degradation of the environment. Socioeconomic, technical and institutional factors have been relied upon in understanding pest control behaviour as part of exertions to reduce the reliance on synthetic pesticides and promote the adoption of indigenous, low pesticide input methods that are sustainable and ecologically friendly. The results have been mixed with minimal improvements in farmers' pest control decisions. This article therefore brings to the fore the need for increased focus on knowledge and perception studies in the bid to unlock the hydra headed challenge.

Keywords: Crops; Field; Insects; Protection; Store

Introduction

A knowledge and perception study are a method of gathering quantitative and qualitative data. In the majority of these studies, data gathering is usually done orally by an interviewer using standardized interview schedules with predefined questions to elucidate responses. The data obtained, which may be quantitative or qualitative, is then analyzed in line with objectives for which it was designed. It studies and collects data on what is known, believed and done in relation to a specific subject [1] using a representative sample of a particular population. It reveals what people know, feel and also how they behave and provides a mechanism for measuring the extent of a given situation by helping to disprove or confirm a hypothesis. They provide fresh perspectives and help to establish a baseline for use as reference in future assessments.

Designing effective extension strategies and undertaking modifications to existing strategies require a comprehensive understanding of the factors influencing farmer's knowledge, perception and decisions Gururaj et al. [2] and in this regard these surveys are useful in measuring and evaluating the effectiveness of extension education [3]. The desire to provide solutions to farmers' agricultural problems in sub-Saharan Africa through the incorporation of their perception is enhanced as they bring to the fore misunderstandings and misconceptions that have become barriers to behavioral change which at the same time reinforces practices extension aims to change. Ochou et al. [4] asserted that a thorough appraisal of farmers' existing knowledge and perception is an indispensable condition to enhancing their roles as independent decision makers.

An evaluation of farmers' knowledge, perceptions and practices in pest control is of the utmost importance in order to set accurate research agendas that address recognized problems in agriculture and correctly decipher gaps between scientists' knowledge and farmers' knowledge. Heong et al. [5] affirmed that the inclusion of such evaluation would make for the development of widely acceptable research output. These surveys are also indispensable to planning awareness campaign strategies and creating messages for mass communication, as they also assist in the design of programmes that are appropriately tailored to the needs of the community. They are highly effective in evaluating changes that occur in knowledge, perception and practice as a result of extension education and intervention as they help in aggregating key data related to the problem and its influencing factors [6].

Meijer et al. [7] stated that farmers' attitudes as whether to adopt a technology or not is the sum of the knowledge such farmers have about the technology and their perception of the technology. The selection of a pest control method is dependent on the individual farmer's goals which are intricately interwoven with his knowledge, perception, attitude to pest control and its effects. Thus, practice and adoption of innovations is highly dependent on what the farmer believes. In an earlier study, Ervin et al. [8] also argued that perception towards adoption is largely framed by farmers' individual characteristics including age and education.

An intensified focus on knowledge and perception of use of pest control among farmers combined with basic research is therefore imperative for the reason that it could lead to the development of successful extension intervention.

Knowledge and Pest Control Behaviour

This is the level of factual comprehension of the subject matter and associated issues. Roska [9] defined knowledge as a structured set of information in space and time about a phenomenon in a specified field of human experience, entrenched in a certain thought framework. Séhouéto [10] argued that knowledge is specific to a social or agro-ecological context within which it is shared and transmitted. Farmers' knowledge is generally a product of the interaction between scientific and indigenous knowledge adapted to their individual, social, political and economic environment. It encompasses decisions and practices built on experience over time. It varies among individuals and is distinctive with age, wealth and gender as some of the differentiating factors. In any social, economic and environmental milieu, farmers' knowledge provides a structure for decision making. Farmers' access to information and the social network within which they interact greatly influences their knowledge about any technology, increases awareness and enhances their capacity to evaluate extant pest control methods [11]. While this knowledge evolves and is dynamic and often rarely systematized [12], it is essential to make a distinction between indigenous knowledge and farmers' knowledge. Indigenous knowledge pertains to insights and adaptive skills based on many years of experience in a local environment [13] while farmers' knowledge is a broader term encompassing indigenous knowledge and variables influencing the present set of knowledge on a particular subject.

The knowledge possessed by the population refers to their understanding of pest control methods. Knowledge as a variable may moderate the choice of pest control methods by farmers. Suklim et al. [14] asserted that risky behavioural tendencies in pesticide use are prevented by good knowledge of the pesticide type and health effects of pesticides. Mohanty et al. [15] found that knowledge was connected to pesticide safety behavior.

Perception and Pest Control Behaviour

The Cambridge Dictionary of the English Language defines perception as a belief or opinion, often held by many people and based on how things seem. It is the understanding or knowledge formed by perceiving a specific concept, idea, or impression or a manner of acting, feeling or thinking that shows one's disposition or opinion. The concept of perception holds that although the social system consists of many individuals receiving similar stimuli and impressions through the ears and eyes, and to a lesser degree through the senses of smell, taste and touch, these individuals interpret the received stimuli differently. Ibeh [16] viewed perception as utilizing sensory information in the identification, recognition and judgment of objects and events in the environment.

Perception, though highly individualized, is a complex psychological process. Hentschel et al. [17] explained perception as a process over time. It is the way we see things, the way they look to us or the way they feel, taste, sound or smell. It is also related to awareness and understanding of a phenomenon. Perceptions are formed by experience and motivations Hentschel et al. [17] and any two people have the same previous memories and emotional experiences. The similarity in perception is essentially a product of similarity of motivational objectives.

Ergo, perception enables people to attain beliefs about their situation and environment and it involves the use of the senses [18]. Gibson et al. [19] holds that exposures to the structures and abilities in the external environment are the building blocks of cognition and that the volume of information and knowledge extracted and processed form the basis of human perception. Similarly, Robbins et al. [20] defined perception as the organization, construction and interpretation of sensory impressions in the environment by a person or group to arrive at a meaning. This is related to feelings toward the subject matter, including view and judgment of its importance. In other words, perception is the belief, opinion and points of view an individual or group of persons hold about a phenomenon. A farmer's behaviour in pest control is the outcome of his own individual perception or of the group to which he belongs.

Thus, rather than been absolute, perceptions are relative and vary between individuals and cultures. Ajayi [21] described it as the process by which stimuli are received from the environment and transformed into psychological awareness. Further, an individual receives a great assortment of stimuli from the environment but only responds to a selection of these stimuli, which largely depends on psychological and physical factors, and arranged in a manner that seem right to the individual. Cognition and experiences have a marked influence on individual perception. According to

Ayansina [22], it is a product of experiences in the past, present and future which incorporates needs, motives and expectations. Also, personality factors such as degree of open or close mindedness, tolerance for ambiguity, authoritarianism and the individual mental processes may affect perception Abiodun [23] as well as values, needs and expectations. In like manner, perception informs behaviour to a large extent. Some scholars hold the view that a latent function of perception is that it influences behavior unintentionally and unknowingly [24].

Meijer et al. [7] asserted that a farmer's perception is his view of a given technology in terms of previous experiences and felt needs. Mumford [25] opined that perception is a consistent view on a subject which is a product of direct experience and indirect information on the subject matter and suggested that choice of control method depends on the perceptions of the dangers of pests and the net effect of the controls that a farmer is aware of and is able to use. The selection of a control method is therefore related to its perceived ability to satisfy the farmer's objectives. Reimer et al. [26] found farmers' perceived characteristics of a practice were a powerful predictor of adoption. A farmer's experience of pest problem and his estimation of losses are direct experiences. However, an overestimation of the losses sustained may lead to a need to protect the crop in all circumstances at all cost.

Perception in pest control studies would consequently refer to farmers' feelings and preconceived notions they have towards pest control methods and their effects. Farmers' perceptions are crucial to comprehending their decision processes in the practices they adopt and extension professionals ought to factor it into their extension strategy. Kambewa et al. [27] posited that individuals' perception about effectiveness of technologies considerably influences their decision to use. Farmers who perceive a pest control method or technology as being the solution to their problems in their particular environment are likely to adopt and use them. Since the decision of farmers to use pest control methods begins with their perception of pests as a problem, a lucid understanding of farmers' perceptions is therefore required for the formulation of policy intervention.

Perception in extension studies should consequently be operationalized to describe the beliefs, expectations and motives of farmers as it concerns the use of different pest control methods and should be treated as an important subject of investigation because changes in behaviour towards agricultural technologies or innovations must be accompanied or preceded by changes in the end users' perceptions [28]. Social, cultural and personality factors determine perception and affect the use of agricultural innovations along with needs, expectations, values and beliefs. This implies that the manner in which farmers will perceive the effect of different pest control methods will be based on their past experiences, needs and beliefs.

The Importance of Information Sources

Albrecht et al. [29] opined that perceptions are developed on the basis of subjective experience with a stimulus having different

cognitive stages rather than an immediate response to external stimuli, that is, not to the instantaneous objective-physical stimulus pattern. It assumed that perceptions reflect an individual's world-view, based on experience and motivation. Consequently, based on this assumption, it is possible to study farmers' world-view, experience and motivation about pest control by studying their perceptions of different pest methods. An assessment of farmers' perceptions is predicated on the belief that understanding the farmers' worldview is essential to the discovery of knowledge gaps influencing their pest control practices. Froese et al. [30] posit that perceptions always entail acknowledgment of information. This process involves the farmer comparing information received from an external source (for example, an extension agent) against information stored in his memory based on his experience. This view emphasizes the importance of information sources in the farmer's own milieu.

The importance of source of information cannot be overemphasized as knowledge and perception of pest control is closely related to their source of information on pest control. Access to information has manifold channels including government extension agents, Non-Government Organizations (NGOs), extension booklets and monographs, fellow farmers, agro-input dealers and retailers etc. Quality information that is specific and appropriate to a farmer's surroundings is facilitated through government extension agents [11]. Such information increases farmers' general awareness about available technologies and protocols and subject to their individual perceptions and characteristics, it influences their agricultural practices. In conservation agriculture studies, farmers' access to timely information positively impacted adoption behavior and the decision to use conservation practices [31]. Economies in transition are populated by smallholder farmers with limited technical knowhow on pest control methods. With this comes the risk of information gaps as new generation of farmers evolve. Investigation into the sources of information on pest control reveals genuine differences as well as widespread limitation. For example, Wasudha et al. [32] reported that vegetable farmers relied on fellow farmers, pesticide shops and vendors, and relatives for their farming endeavors. Given the crucial role pesticide retailers play, Yang et al. [33] stressed the need for effective educational and extension programs for them. Some of these may include crucial knowledge as actions before, during and after pesticide sprays, recommended pesticide and dosage, withdrawal and waiting period, precautionary measures, and associated risks from misuse and exposure to pesticides on farmers [34].

Fan et al. [35] highlighted the importance of authorities in providing information and direction on pest control, awareness and behavior of farmers. Usually, the pesticide retailer in rural areas is the only individual who is readily accessible to resource-poor farmers who lack information, have low educational levels and negligible extension contact. It is necessary to study the sources of information because perception process is based on human exposure to their environment in terms of knowledge gained and information gathered.

Conclusion

Agricultural extension and rural development scholars should institute research into unearthing the knowledge and perceptions that underpin pest control decisions in Nigeria. This would expose belief systems and views that have entrenched the continued use of synthetic pesticides and provide accurate data as input into the design of an effective intervention in the sector. Such intervention would promote indigenous methods, low pesticide input systems, and integrated pest management systems that would guarantee food safety and open global market opportunities for the country's agricultural commodities.

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