Application of Health Belief Model in pesticide pollution: a case study from Nepal

Govinda Bhandari¹, Kishor Atreya², Xiaomei Yang¹, Liangxin Fan³, Violette Geissen¹
¹Soil Physics and Land Management Group, Wageningen University and Research
²Asia Network for Sustainable Agriculture and Bioresources, Nepal
³School of Surveying and Land Information Engineering, Henan Polytechnic University, China

INTRODUCTION
Indiscriminate use of pesticides is an emerging problem in developing countries including Nepal which results in environmental pollution and increased health risk.

OBJECTIVES
Assess end user’s behavior against the pesticide use and their perception on the impacts of pesticide use on environment and human health.

MAIN RESULTS
Farmers apply pesticides much higher than the recommended dose—at an average of 2.9 kg a.i. ha⁻¹ per crop per cropping season.

Pyrethrins and pyrethroids as well as organophosphate that included WHO’s class II group were the most frequently used pesticides.

Farmers perceived minimum threats of pesticide use, and significant barriers on using protective items on environment and human health.

METHODOLOGY
Questionnaire survey Interviewed 183 farmers and 45 pesticide retailers and constructed HBM (Fig. 1).

Data analysis Pearson Correlation Coefficients Path analysis

CONCLUSION
Farmers used highest pesticides on brinjal, chilli, and tomato. Farmers perceived minimal pesticide threats to their health and the environment as well as lower benefits and higher barriers to their safety behaviours. Retailers lack triggers for safety behaviour. Training, awareness and educational programs are recommended.

Table 1: Correlations between farmers’ and retailers’ pesticide use safety behaviour and factors of the HBM

Fig. 3: Path analysis of factors affecting the safety behaviour of retailers

Fig. 2: Frequency of perceived barriers on personal protective behaviour

Fig. 1: The Health Belief Model (HBM)