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Farmer's perception of pesticide use in the lower Bia basin (South-east of Côte d'Ivoire)

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ABSTRACT

Background: The heavy rainfall across south-east Côte d'Ivoire favours crop growth but also contributes to pest invasion. In order to improve harvest, pesticides are excessively used raising environmental concerns. This study identified the various pesticides applied on both cash and vegetable crops grown in the Bia basin and assessed the farmer's perception of the cultural practices involving the use of these chemicals.

Methodology and Results: Using a structured questionnaire, 96 farmers randomly selected from 7 localities of the study area were interviewed. Most of the farmers were male and young and all use pesticides. Overall, 67 formulations containing 33 active ingredients, mainly insecticides mostly applied on cocoa and vegetable farms were recorded. Of these formulations, 16.42% are unregistered in Côte d'Ivoire. The most active ingredients applied are lambda-cyhalothrin (35.4%) and Cypermethrin (31.3%) insecticides. 30.01% and 27.97% of farmers obtain their supplies from unauthorised channels such as the local market and travelling sellers respectively. Many farmers (58.3%) had no training on pesticide use including 67.9% of vegetable growers. Spraying is performed using motorised (32.3%) or manual (67.7%) knapsack sprayers, which sometimes leak. Assessment of PPE's use revealed that farmers do not completely wear them including those who have been trained. A cross-analysis shows that 71.4% of farmers wearing complete PPE did not experience any health complaints after application. The risk of intoxication is therefore reduced under normal conditions of utilisation. 67.1% of growers wash their equipment close to the river, which significantly contributes to the river pollution.

Conclusion and Application of results: This study highlighted concerns about pesticides potential negative effects on river Bia, on the fish and human health. Farmers' habits regarding the safe use and handling of pesticides need to be improved through education and training. There is also a need to sensitise them to the use of PPE when applying pesticides, to avoid direct intoxication.

Keywords: Pesticides, Active ingredients, environment pollution, Human health risk, Bia basin.