

Farmers' Perception and Adaptation to Drought in Maize Production, Dakrong District, Quang Tri Province, Vietnam

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Abstract

This study was aimed to explore the perception on drought, and farmers' adaptation in maize production to cope with drought. It also investigated factors impact on adaptation of farmers in Dakrong – a highland district of Quang Tri province, Vietnam.

A total of 180 households were randomly selected using Yamane formula from three (3) commune which grows maize as a main crop, and represents three types of terrain distribution and socioeconomic characteristics of the district. This selection aimed to create different comparison indicators in evaluating farmers' perception and adaptation between communes and farmer's groups. Both quantitative and qualitative types of information were gathered. To determine farmers' perception on drought, twenty questions (called items) relating to drought definition, drought experience, drought memory, and drought expectation (Taylor *et al.*, 1998) were used. Farmers' perception level was evaluated based on their understanding of these above terms. Whilst, farmers' adaptation was presented using descriptive statistics (mean, percentage, etc.). In order to investigate factors impact on farmers' adaptation, the Multinomial Logit model was used after using factor analysis technique to determine the core factors.

Results revealed that through the assessment questions, most farmers in the study area was classified as low to medium perception on drought (75%), especially, young farmers, those belonging to a ethnic minority, and the poor or female groups that had significant lower perception than others. In terms of adaptation, it partly reflected the relation between perception and adaptation when these above mentioned groups had low adaptation proportion in each adaptation measure. Besides, a significant percentage of farmers (25.56%) never applied any adaptation measures whilst, the rest of farmers adapted one or two practices and they mainly focused on “cultivating one season”, “intercropping”, and “changing to another crops”.

The Multinomial Logit model indicated that individual characteristics (such as ethnicity, education and gender); socio-economic characteristics (household type, maize land area, maize income and non-farm income, distance from home to market); access to information and access to credit; and perception level were significant and negative impact on no adaptation group (ADP_0), and positively influenced on farmers' adaptation by combining measures (ADP_3). Whilst, ADP_1 and ADP_2 were significantly impacted by maize land area, maize income and distance from home to market. These components positively and negatively influenced on ADP_1 and ADP_2, respectively.

In conclusion, this study recommended that extension workers, local officers in charge of agriculture should pay attention on training and disseminating knowledge about drought as well as introducing coping measures for farmers, especially, the poor, ethnic minorities and women to increase their coping capacity. Moreover, the above agencies need to find out the most appropriate adaptation models for each area (slope land area and flat land area). In which, the combination measure (reducing ineffective maize land area and increasing intensive investment for the remaining area) should be more concerned. The related agencies need to continue to fulfil the experimental intercropping models between maize and other crops in order to find out the appropriate and efficient intercropping formula, combined with supporting resistant varieties, production technologies for farmers. Besides developing the irrigation system for flat land area, concerning and disseminating the local knowledge in the community to other farmers are very important solutions to cope with increasingly drought under the impact of climate change today.