

## **The role of extension in activity-based adaptation strategies towards climate impact among oil palm smallholders in Malaysia: a systematic review**

### **ABSTRACT**

Adaptation is a key strategy that can alleviate the harshness of climate change impacts on farming. Adaptation strategies are probably not going to be viable without an understanding of the nature of the impact. Climate change causes higher precipitation fluctuation and less reliable precipitation due to extended drought periods and extreme precipitation that will adversely affect oil palm production. In Malaysia, the common effects of drought stress are: (i) increase of abortion; (ii) failed or rotten bunch; (iii) fluctuated and low productivity; and (iv) long inflorescences (8-9 months). In addition, excessive rainfall usually reduces road quality, inhibit harvest activity, and flooding. High precipitation and humidity also cause severe destruction to fresh fruit bunches. There are several activity-based adaptation strategies dealing with climate change, i.e. planting material tolerant to extreme rainfall, applying soil and water conservation, reducing water evaporation by weed/cover crop management and mulching, and several agronomic practices to reduce evapotranspiration before the dry season. Implementing. In order to achieve this, extension services play an important role in educating farmers by encouraging them to learn, adopt new technologies and spread them to other farmers. To ensure the success of the extension program is through understanding their roles as, Technology and information managers, Capacity developers. Facilitators, implementers of policies and programs. Finally, recommends policy implication for an effective agricultural extension system in Malaysia.

**Keyword:** Adaptation; Climate change impact; Oil palm; Smallholders