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HOW MAY WE HELP RICE FARMERS IN DROUGHT-PRONE AREAS?

Photo by Emi Kameoka

INTRODUCTION

Over time, it is known that frequency of different climate change impacts like drought will continue to increase (IPCC, 2012; Cai et al., 2018; Gabriel et al., 2021). Drought causes major damage in agriculture. In rice cultivation, certain farmers had been reported ending up with zero yield (Pandey, Bhandari, Ding, et al., 2007).

In May 2019, the DA reported that the El Niño caused PhP 4.4 billion damage (i.e., it affected more than 140,000 ha of land and more than 140,000 farmers) in the rice sector, which is more than half of almost PhP 8 billion damage to the agriculture sector (Mercado, 2019). Hence, in this issue of the Rice Science for Decision-Makers, we look into how farmers in drought-prone communities can be properly assisted. Let us focus on the findings of three studies by PhilRice and its partner-agencies that examined drought adaptation in rice-farming communities. This issue aligns with the One DA key strategy on Climate Change Adaptation and Mitigation.

KEY POINTS

- Dealing with drought is a complex undertaking; hence, farmers need to be assisted in adapting to it.
- Shifting planting dates, crop diversification, and adoption of new rice varieties are the preferred adaptation options by farmers.
- The gender dimension of adapting to drought needs to be properly addressed to make adaptation interventions more equitable.
- The constraints to drought adaptation that are either technological or behavioral in nature need to be ironed out.

WHAT THE STUDIES FOUND

How farmers adapt to drought

Farmers employ a range of adaptation options (Almaden et al., 2020). Among them are shifting of planting dates (19%), use of chemical inputs (19%), crop diversification (18%), crop rotation (14%), and adoption of new rice varieties (14%)³. Selling of farm animals and household assets is also common². It was also found that farmers seek for more training programs that relate to climate change adaptation in general, not just drought, which was not the case in the past².

Landholding and gender dominance in households influence choice of adaptation strategies³. Medium and marginal-landed rice farmers prefer to adopt new

rice varieties. If the husband dominates decision-making, the preferred adaptation option is shifting of planting dates. When women call the shots, the preferred options are crop diversification and establishment of water storage facilities.

Constraints to drought adaptation

There are a number of adaptation constraints. Foremost is unavailability of or substandard infrastructure (Jamero et al., 2018), for example, irrigation. If it is just mild drought, areas with irrigation may well be able to cope, which is not the case for those that have yet to be irrigated. Hence, irrigation availability is crucial². Low or lack of awareness on available adaptive mechanisms offered by the government or the private sector also appears to have constrained adaptation^{2,3}. For instance, it was found that farmers in Libmanan, Camarines Sur were hardly aware of the crop insurance scheme available for them even though this program has been going on for several years².

Effect of social identity as rice farmers

Farmers' level of commitment to their social identity as rice farmers may influence their adaptation decisions². There is a point when rice cultivation becomes impractical especially if drought becomes severe. Usually, the more practical thing to do is to look for other livelihood options. Manalo's study found that those who strongly value their identity as rice farmers tend to insist on cultivating rice no-matter-what. Such decision is tied to a number of disturbing consequences such as malnutrition in the family, inability to send kids to school, and indebtedness.

Response to multiple disasters

Farmers respond to multiple disasters². It is usually the case that weather disasters come in tandem (Almaden et al., 2020; Laureta et al., 2021). After drought, flooding comes or vice-versa. This makes it much more difficult for farmers to recover.



CALL FOR ACTION

- **Make drought-tolerant varieties available and accessible.** There are drought-tolerant varieties (Rc 192 and Rc 480), but they are not always available from seed centers. The yields of these varieties (Rc 192 - 3.7 to 5.5 t/ha; Rc 480 - 3.2 to 4.4 t/ha) are comparable with the national average for rainfed (3.28 t/ha) and irrigated (4.53 t/ha) environments. These varieties have to be promoted. The National Seed Quality Control Services (NSQCS) could help publicize the seed centers that sell the drought-tolerant varieties. Currently, the Rice Competitiveness Enhancement Fund (RCEF) - Seed Program distributes some of these varieties, which could help augment the supply. Alternatively, the DA's National Rice Program must ensure the availability of drought-tolerant varieties.
- **Include gender-based preferences in evaluating adaptation strategies to support.** Adaptation strategies to be supported and promoted must respect the divergent preferences of men and women farmers. Women go for crop diversification and putting in place water storage facilities. Men prefer shifting planting dates.
- **Intensify promotion of agriculture-based adaptation strategies.** The roles played by the agricultural extension system need recalibrating from the traditional technology transfer work to giving advice on climate resiliency among farmers. Agricultural extension workers would do well to be trained on approaches that will help farmers realize the consequences of their decisions (e.g., their strong attachment to their social identity). Adaptation mechanisms such as the alternate wetting and drying irrigation technology and other water management practices that are embedded in the PalayCheck system need reiteration. Use of ICTs such as the various applications developed may be useful in strengthening adaptation efforts.
- **Push for weather index-based insurance¹.** Crop insurance helps farmers in dealing with the impacts of drought, in particular huge losses. It is important, however, to push for a form of insurance that gives payouts that are commensurate to the actual losses of farmers. A DA-PhilRice study recommends to look into the prevailing Weather Index-Based Insurance for low rainfall indices. Usually, the indices are based on large data sets that cross-analyze crop production reports and historical weather data. Even so, these large data sets are either not always available or have reliability issues resulting in payouts that disadvantage either the client or the insurance provider. The study pushes for the use of indices based on the rice crop's daily water requirement, which is more business-promising than the use of large data sets as it resulted in giving more appropriate payouts to clients.
- **LGUs to invest on more forms of institutional adaptations.** The findings cited above show that institutional adaptations (e.g., reliable irrigation infrastructure) help farmers adapt to drought. It is imperative that local officials invest on making these adaptive mechanisms available for their rice farmers. The DA has a suite of adaptive mechanisms to drought such as drip irrigation, water-harvesting technologies, and Palayamanan farming system. Other examples of institutional adaptations for drought include making available crop insurance, training programs, and farm machines for farmers.



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ABOUT THE MATERIAL

Rice Science for Decision-Makers is published by the Department of Agriculture-Philippine Rice Research Institute (DA-PhilRice). It synthesizes findings in rice science to help craft decisions relating to rice production and technology adoption and adaptation. It also provides recommendations that may offer policy triggers to relevant rice stakeholders in search of opportunities to share their knowledge on rice-related products.

The articles featured here aim to improve the competitiveness of the Filipino rice farmers and the Philippine rice industry through policy research and advocacy.

This issue presents policy recommendations to assist farmers in dealing with drought.

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