

# Sustaining rice plants

I REFER to the recent media reports about the possible impact of the current dry spell on rice production in the northern part of peninsular Malaysia, especially in the plains of Kedah and Perlis where the Muda Agricultural Development Authority (Mada) is located.

The drought which is drying up the rice fields there has caused a lot of concern among the farming community and members of the public alike.

Universiti Putra Malaysia (UPM) was asked to comment on the situation and, if possible, offer some suggestions on how to minimise the impact of the drought on rice production.

In response, our experts have offered the following observations and suggestions.

1) Weather has a direct effect on the rice cropping system and eventually its yield. Despite the fact that rice thrives in a hot and dry climate, extreme temperature at its reproductive stage may result in irreversible damage to the plant's growth.

2) The reports in the print media about delaying rice planting in Mada due to the water shortage were incorrect.

According to Mada officials, water is sufficient for growing rice during the coming season, which is going to start early next month. There is enough water to irrigate all the padi fields in the area provided the farmers strictly follow the irrigation schedule.

3) Adopting proper climate mitigating strategies will enable us to



sustain rice production under adverse climate conditions. This has been proven by Vietnam, one of the major rice-producing countries in the world. Its rice production this year, according to a recent report in *Vietnam News*, is estimated to be 45.2 million tonnes, which is 230,000 tonnes higher than the target level, despite the adverse weather effects associated with El Nino.

4) For Malaysia, we need to undertake spatial assessments of rice-growing areas that are vulnerable to high temperature and drought for planning, implementing and adoption of strategies to sustain rice production. The sensitivity of rice to high temperature and drought conditions vary with the growth phase, increase in day/night temperature and the padi strains.

5) In situations where water is

inadequate for irrigating rice fields, the planting date may have to be changed. This is being practised in major rice-producing countries where drought frequently occurs.

6) Having adequate water is crucial for the establishment of the rice plants. If there is no water in the catchment pond, there is no alternative other than to delay planting until enough water is available. Rice establishment can occur under saturated soil conditions but this will cause devastating crop loss and involve the high usage of chemicals to control weeds in the fields. Thus, flooded conditions at the early stage of padi planting is important both for development of the young plants and to suppress weed infestation.

7) During the plant growth phase, water conservation by

managing water based on plant growth can be adopted successfully. Our research findings show that water saving techniques such as Alternate Wet and Dry Irrigation (AWD) and deficit irrigation can be adopted without affecting yield. Correct fertiliser management is another option for managing the plants under limited water. Our recent data published in a well-known water management journal reported that managing fertilisers such as potassium can be effective in sustaining rice plants affected by drought.

In UPM, we are currently conducting research to address the problems mentioned above. The Faculty of Agriculture at UPM has set up a task force to undertake research to look into issues related to climate change in our major rice granary areas.

We have already shared with the relevant authority some of our research findings, such as effects of rice production under high temperature with adequate water, water requirements based on growth stages, and weed management for limited water conditions.

Other findings, such as improving grain filling of rice to increase yield, have also been highlighted but these are yet to be tested under large-scale field trials. This research is funded by the Higher Education Ministry under the Long-term Grant Scheme (LRGS) initiative on rice food security.

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