

was produced for each condition of temperature change using GIs.

Simulations of global change effects in the Philippines. Simulation results from each of 7 locations, on yield and disease, were analyzed for each temperature condition interacting with a UV-B treatment. Means and standard deviations were calculated for comparison in different temperature change and UV-B treatments. Results are summarized as follows:

- The yield loss caused by UV-B was normally at 9-10%, independent of temperature change, and its deviation is much smaller than that caused by blast.
- Enhanced UV-B will cause more severe blast epidemics compared with situations without UV-B. In most cases of temperature changes, except -3°C, maximum disease severity and AUDPC were doubled or more under UV-B effect.
- UV-B will cause much more severe blast when the temperature change is -3°C compared with other temperature change levels.
- In most cases, yield loss caused by blast with UV-B is greater than the sum of individual losses caused by blast and enhanced UV-B.
- Yield loss caused by blast with UV-B is generally at 15-20% under most temperature change conditions, except -3°C.

In this study, RICE-BLAST model was modified by incorporating enhanced UV-B effects into the individual rice and blast models, using IR30. To further test the model, parameters and complete experimental data from more varieties are needed as are independent data of blast epidemics occurring under enhanced UV-B. These kinds of data, however, are difficult to obtain from field experiments; until they can be, predictions of global change effects on blast must remain tentative.

REFERENCE CITED

Finckh M R, Chavez A, Dai Q, Teng P S (1994) Agric. Ecosyst. Environ. (in press)

Research methodology

How to adjust grain yield to 14% moisture content

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Grain yield of rice is usually reported based on 14% moisture content. This allows comparison of yields across locations and years. Grain moisture content of 14%, however, may be expressed on a fresh weight (fw) or dry weight (dw) basis. Moisture content on a fw basis (MC_{fw}) is generally higher than moisture content based on dw (MC_{dw}). This difference becomes greater as MC increases.

Moisture percentage on a fw basis ($\% MC_{fw}$) and dw basis ($\% MC_{dw}$) can be converted from one to the other using the following equations:

$$\% MC_{fw} = 100 \times \% MC_{dw} / (100 + \% MC_{dw}) \quad (1)$$

$$\% MC_{dw} = 100 \times \% MC_{fw} / (100 - \% MC_{fw}) \quad (2)$$

Electric moisture meters are commonly used to determine grain moisture content. These meters generally measure the conductivity or capacitance of seeds and express the moisture content as $\% MC_{fw}$, not $\% MC_{dw}$. The correct equation to use in calculating the grain yield adjusted to 14% MC, is

$$\text{Adjusted weight (14\% } MC_{fw}) = W \times (1 - 0.01 \times \% MC_{fw}) / 0.86 \quad (3)$$

where W is the weight of the grains and $\% MC_{fw}$ is the moisture meter reading. On the other hand, the equation for calculating grain yield adjusted to 14% MC_{dw} is

$$\text{Adjusted weight (14\% } MC_{dw}) = W \times (1 - 0.01 \times \% MC_{fw}) \times 1.14 \quad (4)$$

The adjusted grain weight calculated with equation 3 is nearly 2% higher than that with equation 4, meaning that the grain yield adjusted to 14% MC_{dw} is almost 2% lower than grain yield

adjusted to 14% MC_{fw} . Therefore, when reporting grain yield, indicate whether the 14% MC is expressed on a dw or fw basis. It is preferable to report grain yield adjusted to 14% MC based on fw using equation 3. ■

A new method for transporting *Azolla* culture collections

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Azolla is a free-floating water fern that fixes atmospheric N_2 in association with N_2 -fixing cyanobacterium *Anabaena azollae* that can be used in wetland ricefields.

The survival of *Azolla* is poor, however, when it is removed from water, making transport difficult. Scientists doing *Azolla* research transport culture collections in tissue paper soaked with N free nutrient solution in plastic petri dishes. This method is not ideal because the moist tissue paper is conducive to rotting the plants, causing the fronds to die. To overcome this problem, we carried out a laboratory experiment to assess the survival of *Azolla* fronds stored in polythene bags.

Fresh fronds of *A. microphylla* and *A. filiculoides* were collected from culture tanks and washed repeatedly in tap water and then in distilled water. Fronds were placed in tissue paper and gently pressed for 30 min to remove adhering moisture. Ten grams of fronds were packed tightly into polythene bags, which were then sealed or stapled. Two sets were stored in the laboratory for 6 wk at $27 \pm 1^\circ C$ in light at 3000 lux intensity and in the dark. More than 70% of the fronds of the species survived and could be revived in N-free liquid medium. The study was repeated three times with the same results.

This easy method is recommended for transporting *Azolla* cultures. ■