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MUTATION BREEDING OF SORGHUM TO SUPPORT CLIMATE SMART AGRICULTURE

Global climate change effects in agricultural fields often increase plant stress. For mitigating climate change, climate smart agricultural policies should be developed, for example, through the improvement of crop adaptability and productivity in environments impacted by climate change. Attempts to increase crop genetic variability must be sought in mitigating adverse conditions brought about by climate change. For that purpose, mutation breeding plays an important role since it can increase genetic variability of important crops. By selecting desired mutant genotypes, the plant breeder can advance his germplasm by progressing lines with good adaptability and with high productivity under adverse conditions. For Indonesia, significant adverse impacts of climate change have appeared in some agricultural regions, such as drought problems in eastern regions, more soil acidity problems in western regions and salinity problems along coastal areas. To face the worsening conditions brought about by climate change and variability, a crop was sought that would require less agricultural inputs, being drought tolerant, has a good adaptability and with high economic value. The choice fell on sorghum (Sorghum bicolor). In certain areas sorghum is recognized as a source of food, feed and fuel. Mutation breeding of sorghum has been conducted at the Centre for Isotopes and Radiation Application (CIRA), the National Nuclear Energy Agency of Indonesia (BATAN). Sorghum mutation breeding is relevant to the National programme on food diversification and food security. The breeding objectives are to improve sorghum genotypes for improved yield and quality, and tolerant to adverse conditions brought about by climate change, such as prolonged drought. Some sorghum mutant lines and varieties have now been produced and will be presented in the symposium.

Country or International Organization

INDONESIA

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