Indonesia Loses 75% of Agricultural Genetic Resources Diversity

Friday, 24 August 2018 WIB, By: Marwati

Agricultural genetic resources diversity in Indonesia continues to decrease due to the lack of conservation efforts. In fact, excessive use of certain plant varieties causes a reduction in other plant genetic resources up to 75 per cent. Therefore, it requires plant breeding efforts, preservation of crop genetic diversity through gene banks, and cultivation of various local plants among farmers. This was stated in the Workshop on Genetic Resources Management at Eastparc Hotel Ballroom, Thursday (8/23).

The workshop organized by UGM's Agro Technology Innovation Center (PIAT) presented several speakers including a researcher from Indonesian Center for Agricultural Biotechnology and Genetic Resource Research and Development, Dr. Mastur, member of Indonesia Breeding Science Society (PERIPI) and lecturer of Bogor Agricultural University, Prof. Dr. Muhammad Syukur, S.P. Msi, Director of Research and Development at PT East West Seed Indonesia, Ir. Asep Harpenas, as well as plant breeding researcher from UGM Faculty of Agriculture and Head of PIAT UGM, Dr. Ir. Taryono, M.Sc.

Muhammad Syukur reported 75 percent of agricultural genetic resources have been lost due to the lack of conservation efforts and the excessive use of one or two varieties. "The unused local varieties will be lost. Indonesian farmers should not plant the same crop varieties."

He stated the percentage of germplasm in Indonesia reached 17 percent of the total plant genetics in the world. “There are 3.256 plant species. Most are unexplored medicinal plants.”

However, low plant breeding efforts lead to a decrease in genetic resources and there are only 1.500 plant breeding researchers. The number is insufficient to convert the agricultural genetic resources of food crops. In his opinion, an increase in the quantity and quality of plant breeders is needed. “There needs to be an effort to increase capacity, funds, and facilities.”

Creating new plant varieties requires a long process of plant breeding, consisting of gene collection, selection, hybridization, and release of varieties. “It takes at least five to ten years to create a new variety.”

He further stated that agricultural plant breeding efforts are necessary to anticipate the challenge of food crisis that hit Asia in 2015 due to population growth and narrow agricultural land. Bogor Agricultural University has at least performed plant breeding by collecting as many as 316 varieties of chili and some have been released.

Asep Harpenas said gene banks are needed to convert the agricultural genetic resources in Indonesia. He opined that the banks can be a platform for researchers and plant breeders to exchange information and genetic resources. “It does not only function to store the existing resources, but also to facilitate plant breeders to exchange genetic resources to be used sustainably.”

Dr. Ir. Taryono, M.Sc., announced PIAT UGM plans to establish a Vegetables Gene Bank to support Indonesian food sovereignty. This is because local vegetable varieties have been replaced by new superior varieties or shifted to marginal areas as a result of the advancing intensive agriculture.

The management of genetic resources is performed through inter-agency cooperation as a consortium so the resources can be widely accessed. Eventually, gene banks can facilitate the demand and exchange of vegetable genetic resources for global communities.

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