

Plenary Speech by Dr. Adha Fatmah Siregar

Optimizing Indonesian Agriculture through Applicable Technologies and Innovations



The strategic role of the agricultural sector is shown by its role in food supply, feed and bioenergy, industrial raw materials, employment absorber, source of foreign exchange and income sources, including environmental conservation. As an agricultural country, Indonesia, through the Ministry of Agriculture, is currently prioritizing five key points to support food system development, namely production capacity enhancement, logistics, agriculture modernization, and export promotion. Related to agriculture modernization, Indonesia is accelerating the transformation of the agricultural sector by improving and strengthening the technologies and digital approaches in agriculture in a comprehensive perspective. It is known that one of the important factors affecting plant growth is soil fertility, and Indonesia has varied soil types with different levels of soil fertility. Due to this condition, we have developed applicable technology to support improving plant and soil productivity. The technologies are rapid soil test kit for lowland, upland and swampland which are provided with fertilizer recommendation; rapid plant test kit for sugarcane; rapid fertilizer test kit for inorganic and organic fertilizer, and the latest one is smart soil sensing kit based on near infrared (NIR). This smart soil sensing kit is an advanced technology based on NIR that could be used for measuring soil chemical and physical properties and is equipped with fertilizer recommendation. In line with those technologies, development of system information for agriculture is needed, and the Ministry of Agriculture has published an information system of integrated cropping calendar. This system initially estimates paddy planting time, and the user can obtain other information as disaster prone areas such as drought, flood, pest attack, recommended varieties, seed requirement and fertilizers. The latest system information that has launched is SISCrop 2.0, an information system that is developed based on radar, and provides data of plant growth stages every 15 days for all locations in Indonesia. It is expected that applicable technologies could be replicated at national level to improve and optimize agriculture production and farmers' welfare.

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