Africa shifts from back-breaking operations to almost labor-free threshing

The excitement of rice farmers in Saint-Louis, Senegal, upon seeing an appropriate engine-driven small-scale thresher from Asia in the mid-1990s could not have been far different from that of the first American president, George Washington, in 1796, when he was expecting the first horse-powered threshing machine to arrive from London. He described the new machine as one of “the most valuable institutions in this country; for nothing is more wanting and to be wished for on our farms.”

The Asian rice thresher, which the Senegalese rice farmers appreciated, was sent by the International Rice Research Institute (IRRI) upon request by the Africa Rice Center (AfricaRice). It was expected that this thresher could be locally manufactured and mounted to serve as an alternative to manual threshing.

The making of ASI

Thanks to an innovative partnership forged between IRRI and the Senegalese rice farmers, the Senegal River Valley (the principal zone for irrigated rice in the country) was soon developed. Based on the IRRI prototype, it can reduce the drudgery associated with hand threshing and improve yield and marketability of rice.

Substantial modifications were made to the original thresher, including adding its capacity; making it more robust by using sturdier material, increasing its processing power, and adding two wheels to make it a four-wheel version.

Named “ASI” after the three main partners—AfricaRice, the Senegal River Valley National Rice Development Agency (SAED), and the Senegalese Institute of Agricultural Research (ISRA)—the thresher went through several adaptations to ensure that it met the requirements of producers and women rice farmers engaged in threshing activities.

ASI was commercially released in Senegal in 1997. Since then, ASI has become the most widely adopted thresher in Senegal, with major impact on the rice production chain. A study showed that, with six workers, ASI yields six tons of paddy per day vis-à-vis one ton by manual threshing and four tons by Votex, the alternative small-scale thresher that was available in the Senegal River Valley. Moreover, with a grain-straw separation rate of 96%, no additional labor is required for sifting and winnowing compared to Votex, which could not properly separate grains from straw after threshing.

In other words, it reduces labor requirements, freeing up family members, particularly women, for other useful tasks such as the postharvest process; allows production of a higher quality product with lower risk of damage; and increases the marketability of rice in the face of imports.

Recognizing its immense value for the country as a technical solution that is acceptable to everyone in the rice-growing community, including women, the Grand Prix du Président de la République du Sénégal pour les Sciences (Special Prize of the President of Senegal for Scientific Research) was conferred in 2003 on General Marco Wopereis, who had served as an agronomist in the Saint-Louis Station of AfricaRice in the ’90s and was closely involved in all the stages of ASI’s development.

An impact study conducted by AfricaRice in Senegal 12 years later in 2009 showed that ASI continued to be one of the most important improved postharvest technologies in the Senegal River Valley, helping irrigated rice farmers to cope with labor scarcity. For farmers, the ASI thresher is a time- and labor-saving device with a high grain recovery rate.

Spreading across the region

As ASI’s popularity grew among the rice farming community and its impact continued to ripple outward and change the lives of rural households, the experience in Senegal was successfully extended to several West African countries (Côte d’Ivoire, Burkina Faso, Ghana, Mali, Mauritania, etc.), where each country further adapted the machine to suit its own specific conditions and released it under different brands.

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