Maize: Attainable Yields in Southeast Asia

Knowledge of the attainable yield of a crop is essential for the development of site-specific fertilizer recommendations and in yield-gap analysis. Traditionally, the attainable yield is measured in trials conducted in farmers' fields where best crop management practices were implemented to reduce or eliminate yield-reducing factors, such as nutrient deficiencies or toxicities, weeds, pests, and diseases. Because yields vary from season to season and year to year due to climate, however, on-farm trials would have to be done over several seasons to ensure that the mean estimate reflects the typical range of climatic variation for the given location. Hence, direct measurement of attainable yield in the field may not always be a feasible option, especially when yield estimates are needed for multiple locations, as it is labor-intensive, time-consuming, and expensive.

The decision support software *Nutrient Expert™ (NE) for Hybrid Maize* is able to estimate attainable yield based on readily-available information related to farmers' current yield levels and their maize-growing environment. Some examples of attainable yields estimated by the *NE* software for a number of maize-growing regions in Indonesia, the Philippines, and Vietnam are shown in Table 1.

Table 1. Attainable yields estimated by Nutrient Expert™ for Hybrid Maize

Maize-growing region (District/Municipality, Province, Country)	Season*	Attainable yield (t/ha)
Central Lampung, Lampung, Indonesia	WS	9
Langkat, North Sumatra, Indonesia	DS	8-9
Kediri, East Java, Indonesia	DS	7-8
Bone, South Sulawesi, Indonesia	DS	6-7
Cabatuan, Iloilo, Philippines	DS	7-8
Murcia, Negros Occidental, Philippines	DS	6
Bayambang, Pangasinan, Philippines	DS	8-9
Abra de Ilog, Occ. Mindoro, Philippines	DS	7
Cu'Mgar, Daklak, Vietnam	WS	8-9
Krong Pak, Daklak, Vietnam	WS	8-9

**DS – dry season; WS – wet season*

Attainable yields estimated by the NE software range from 6 t/ha to 9 t/ha. On the other hand, average maize yields in these countries reported by the United Nations' Food and Agriculture Organization are currently less than 5 t/ha (Figure 1). This scenario indicates substantial opportunities to increase maize production in the region by closing this yield gap through better management including fertilization, without having to expand the current cropped area.

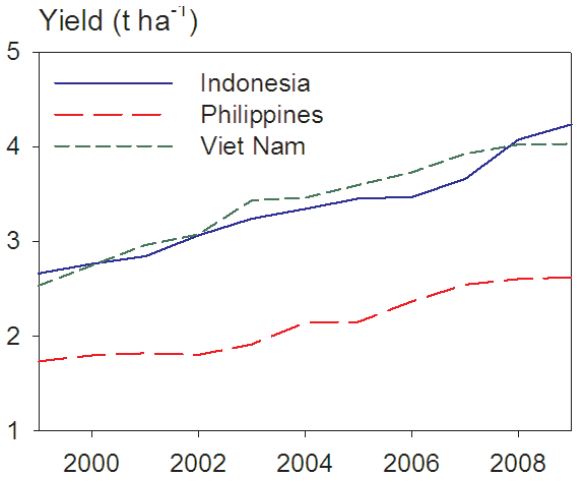

Figure 1. Average maize yields in Southeast Asia, 1999-2009 (Source: FAOSTAT, http://faostat.fao.org/)