

Estimating Land Use and Fertilizer Requirements in Southeast Asia: The Oil Palm Example

The agricultural industry in Southeast Asia has been growing rapidly in the last 20 years. Ten out of 12 countries in this region are key producers of globally traded crops such as paddy rice, maize, oil palm, rubber and sugarcane. For instance, Indonesia and Malaysia are the world's largest oil palm producers. In addition, the population in Southeast Asia has increased by more than 45% since 1990 to over 641.95 million in 2016 (World Bank, 2017), leading to greater demand for food and land in the region, and about 27% of land in Southeast Asian countries is used for agricultural purposes (The World Factbook, 2011).

IPNI SEAP has started to source up-to-date data on such land use and crop production developments in order to analyze nutrient requirements. There are several accessible databases that provide such information, some are available for free, while others are fee-based. Most obtain their primary information from the Food and Agriculture Organization of the United Nations (FAO) and the U. S. Department of Agriculture (USDA). Besides these, local government databases such as Malaysia Oil Palm Board (MPOB) Malaysia, CountrySTAT Philippines and Badan Pusat Statistik (BPS) Indonesia are also available.

FAO Statistical Division is responsible for maintaining The Food and Agriculture Organization Corporate Statistical Database (a.k.a. FAOSTAT 2015). The FAO database is sourced from national governments, and is updated annually and based on the calendar year. Due to this acquisition process, FAO data is often two to three years behind the actual year. Meanwhile, USDA data is generated independently and peer-reviewed by expert panels of commodity and trade specialists. USDA works together with their internal agencies such as Economic Research Service, Foreign Agriculture Service and World Agricultural Outlook Board to generate the commodity data and forecasts. USDA data is based on the marketing year, and updated approximately once per month, providing data for the actual year as well as forecasting the world's agricultural production.

IPNI SEAP uses both FAO and USDA land use data, because not all commodity values provided by FAOSTAT is available in USDA data sources. For example, although FAOSTAT provides commodity values for cassava, rubber and cocoa, these values are not available from USDA. Besides that, USDA only provides production values of oil palm in terms of oil instead of fresh fruit bunches (FFB). In order to make a side-by-side comparison for this specific crop from these two data sources, we estimate FFB production based on 20% oil extraction rate (OER) (Corley and Tinker, 2016) in USDA. FAO and USDA data reveal similar general trends and broad pattern for oil palm. For example, Figure 1

shows the area planted with oil palm and their FFB production in the Southeast Asian region. With broad trends being similar, long term regional forecasting exercises may rely on both data sets. Short-term analyses that include the year of production and the following two to five years should be based on the USDA dataset. Nutrient demand calculations are often done for such time periods, and it is likely of advantage to use USDA data.

Please inquire for further information at IPNI SEAP (MSTan@ipni.net).

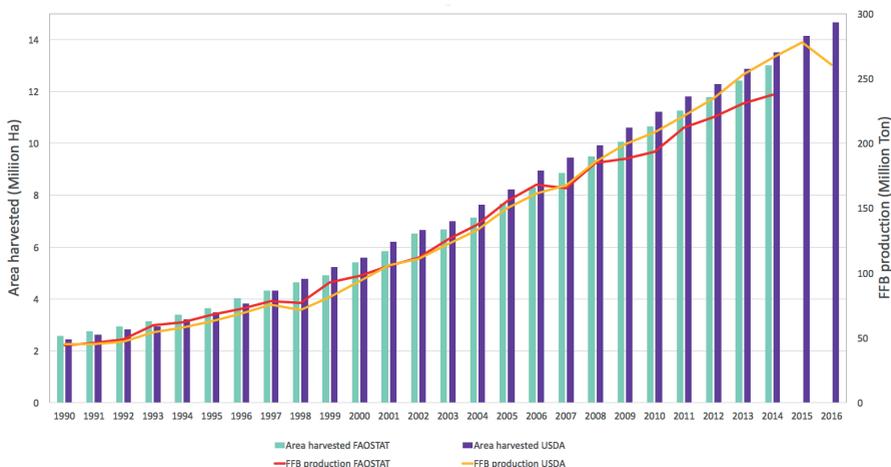


Figure 1: Total land use for oil palm and FFB produced in Southeast Asia from 1990-2016. Southeast Asian countries include Indonesia, Malaysia, Papua New Guinea, Philippines and Thailand. *USDA provides data in terms of palm oil. Thus, we estimate FFB production based on 20% OER from USDA palm oil data.

References:

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