in pH value are similar to those developed by IPNI SEAP for sustainable yield intensification in oil palm plantations using BMP (Donough et al. 2010). Specifically, the BMP concept promotes (Rankine and Fairhurst, 1998):

1. Placing of pruned palm fronds between rows and in the space between palms within rows,
2. Applying AS over the edge of the weeded palm circles and the adjoining frond stacks,
3. Spreading urea evenly within the weeded palm circle,
4. Applying straight and compound P fertilizers over the edge of the weeded palm circles and over the inter-row spaces,
5. Spreading straight and compound K fertilizers in a wide band around the weeded palm circles, and
6. Using EFB as organic fertilizer to replace bunch ash.

One might deduce from the results of the fertilizer studies in PNG that the listed BMPs may contribute to a reduction in pH over time. If evidence exists for such change, the BMP implementation process should address it so as not to jeopardize sustainable yield intensification. However, the fact that pH of the Indonesian soils did not decline over time suggests that they have reached a pH at which pH BC is effectively infinite (Nelson and Su, 2010) and little or no further decline in pH will occur under normal agricultural practices.

Based on an extensive literature review, we conclude that oil palm can tolerate fairly low values in pH. Commonly reported pH values in the range between 4 and 5 are considered favorable for commercial oil palm production in Southeast Asia (von Uexkull and Fairhurst, 1991; Goh 1995; Mutert 1999; Corley and Tinker, 2003; Paramananthan, 2003). Mutert (1999) listed eight representative soil types commonly used for oil palm in Southeast Asia and he further stated that all of these soils have a pH less than 5.0, six of the eight soils have low to very low contents of N, available P, and exchangeable K, and half of the soils have low to very low content of exchangeable Mg, when evaluated for oil palm fertility parameters.

Conclusions

Experiments in PNG have shown a strong acidifying impact of fertilizer application in oil palm plantations, alerting practitioners to the potential risk of adverse impact on yields. However, a literature review and preliminary data from BMP implementation at four sites in Indonesia illustrate that relatively high yields are obtainable on soils with a low pH. Plantation managers are advised to monitor and evaluate soil fertility characteristics in both the weeded circles and frond deposition areas to determine the relationship between acidification and yield trends. BC

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