

## **Towards Field Specific Fertilizer Recommendations for Mature Tea**

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There was a time that a single fertilizer mixture was recommended for all the tea growing areas in the country. Later it changed to more in number based on regional differences and types of tea. The current concept of site specific fertilization is novel, and it leads to a more discriminatory basis considering the site-characteristics of individual fields of the estate and it aims at utilizing native soil nutrient reserves. Therefore, this approach recommends application of mineral fertilizer inputs, only in required quantities to bridge the plant needs less in the soil.

The concept of applying fertilizer specific to the site lies with the availability of information of the resource base. Therefore, it allows growers to manage resources better, and optimize their yields with better returns on investment. Development of a data-base is the first step in adopting site-specific nutrient management. In tea estates, fields vary in their characteristics. Sometimes the differences between the soils are small, but often these differences are fairly large. Therefore, site-specific characteristics are used as criteria to measure those differences to manage soil fertility issues by adopting application of differential nutrient inputs. Therefore, site-specific fertilizing is managing tea fields by avoiding under- or over-fertilizing and also shifting from conventional way of using the same fertilizer management practices to all the field.

Site-specific fertilizing is cost effective, and our recent experience suggests that this approach could benefit the growers due to variety of reasons. Site-specific management techniques are environment friendly and can be used at relatively low cost because the purpose of site-specific fertilizing is to do the right thing at the right place at the right time. To conduct site-specific approach, following steps are required:

1. collect information about fields (field extent, type of tea, past yield records, rainfall etc.),
2. tabulate collected information,
3. soil sampling and analysis,
4. interpretation of data,
5. estimate specific nutrient inputs, and
6. application of nutrient inputs to fields considering climatic factors.

Development of a decision support system to make site-specific fertilizer recommendations seem necessary for corporate sector plantations, since most of them can have access to fertility status of their soils. The annual yield data of past cycles and rainfall distribution of the area need to be collected and tabulated in a sensible manner to make them usable to determine nutrient quantities and frequency of application. Based on landscape characteristics, tea fields have to be demarcated into blocks with least possible variability, and representative soil samples should be drawn and analyzed by recognized laboratories for pH, total C, P (phosphorus), Exchangeable K (potassium) and Mg (magnesium). The spatial distribution of extractable P, Exchangeable K and Mg and soil buffering power at field level is important for site-specific nutrient management decisions. Usually soil P tends to show greater stability than K and Mg and it is a fact that field's yield potential need to be considered in deciding on nitrogen application.