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Using tappers' perceptions on morphological features of trees in identifying high yielding Kitul trees

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Sap from Kitul (*Caryota urens*) tree is used for making many food items. Demand for kitul products is increasing indicating a higher potential for improving livelihoods of people in production areas. It is difficult to identify a high yielding Kitul tree until it is tapped. As a result unproductive trees consume otherwise usable scarce land for the vegetative phase of about 12 years. The objective of this study was to develop a procedure to identify high yielding Kitul trees at the pre-flowering stage using perceptions of kitul tappers on morphological features. Perceptions on visual features of leaves, and stems were used as indicators of productive trees. Data were collected from 304 tappers selected from all 12 kitul growing districts in Sri Lanka using a multi-stage stratified random sampling framework. A pre-structured questionnaire was used to collect data on perceptions on the features of leaf, and trunk on sap yield. Perceptions on features of inflorescences were also recorded. Data were analyzed to calculate percentage responses.

Findings indicate that tappers believe trees with a) horizontal orientation of leaves (65%), b) closely spaced leaves (65%) and, c) dark green leaves (66%) as high yielding. The trunk has a broader perimeter and the earliest floral initiation occurred at 12 years after planting (60%). Emergence of feeder roots on a regular basis with onset of monsoonal rains (60%) is another desirable character.

The basis for these perceptions can be described using agronomy principles. Dark green leaves and closely spaced leaves indicate the healthy growth of a tree. These features are signs of a higher potential for photosynthesis and hence, production of more starch. Long vegetative period means that more food reserves have accumulated in the pith of the tree. The root system is strong enough to anchor the tree and ready for absorption of nutrients from revived fresh roots.

As the majority of the respondents has agreed upon identified morphological features, these findings can be useful for selection purpose of high yielding trees. However, further investigations are required to identify consensus among more tappers' on the use of this method.