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The Impact of Wild Plant Foods in Reducing the Minimum Cost of a Nutritious Diet in Turkana, Kenya Using Linear Programming Modelling

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Abstract

The objective of this study was to determine the minimum cost of a nutritious diet for children: 6–8 months, 9–11 months, and 12–23 months and women (15–49 years): non-pregnant/ non-lactating, pregnant and lactating by modelling locally available foods with or without wild plant foods. Three pastoralists and three agro-pastoralists villages were randomly selected from a list. Market surveys were conducted in each village for plenty and lean seasons in 2016. Focus group discussions (FGD) were held with ten women per village to determine culturally accepted dietary habits (minimum and maximum constraints of food) and these constraints were verified against the 25th and 75th percentiles of actual dietary intake from a 24h recall tool applied to 180 households. Results from a FGD on agrobiodiversity following the 4-cell methodology developed by Bioversity International were used to select three wild vegetables and three wild fruits for modelling. All data were entered in the Cost of Diet software developed by “Save the Children UK” to model a Locally Adapted Cost Optimised Nutritious (LACON) diet.

The modeled LACON diet without wild plant foods costs between 49–101 Kenyan Shillings (KES) (\$0.5- \$1) daily in the plenty, and between 59–119 KES (\$0.6- \$1.2) in the lean season for children 6–8, 9–11 and 12–23 months. For non-pregnant/ non-lactating, pregnant and lactating women it costs between 173–247 KES (\$2- \$2.4) and 226–304 KES (\$2.2-\$3) respectively in the plenty and lean seasons. Diets modelled with all wild vegetables reduced to a large extent the cost of diet for all groups in both seasons. The most significant cost reduction was found by adding *Solanum americanum*, for pregnant women in both seasons, namely 47% cost reduction. Iron and zinc nutrient deficiencies were found in LACON diets without wild plant foods of all groups except lactating women.

Models with all wild vegetables provided the cheapest LACON diets, but they still remain unaffordable for most households in Turkana irrespective of their wealth level. Nonetheless, wild plant foods have a positive impact on the reduction of the cost of diets as well as making up for nutrient deficiencies.

Keywords: Affordability, cost of diet, LACON, wild plant foods