



The impact of legume cereal based complementary food, reduced aflatoxin exposure and improved hygiene practices on malnutrition status of children in rural Tanzania

Anitha Seetha^{1*}, Yasinta Muzanila², Taku W. Tsusaka¹, Emmanuel S Monyo³, Lizzie Kachulu¹ and Patrick Okori^{1*}

¹International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

²Sokoine University of Agriculture (SUA)

³International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

*Corresponding authors: Anitha Seetha S.Anitha@cgiar.org; Patrick Okori, P.Okori@cgiar.org

Abstract

According to the Tanzania National Nutrition Survey 2014, the chronic malnutrition and stunting among children of age between 0-59 months are estimated at more than 40 % and 11 %, respectively. Apart from the rate of food insecurity and inadequate feeding practice, the underlying causes which play an important role are aflatoxin exposure and hygiene. A baseline survey was conducted on 100 mothers with the children of less than 24 months old from 5 villages (Moleti, Mlali, Chetigo, Njoro and Laikala) in Kongwa and Kiteto districts of Tanzania, as a basis for assessing the impact of diversification in food utilization, better hygienic practice and reduced aflatoxin exposure on underweight, wasting and stunting. It was found that more than 70% of the mothers had started feeding their children with complementary food prepared with maize and groundnut at the age of 6 months. The aflatoxin contamination in these grains were found to be >20ppb in >70% of the stored grains especially in the subterranean groundnut. The urinary aflatoxin biomarker study using enzyme linked immune sorbent assay (ELISA) method showed that about 47 % of the children had aflatoxin (AFM1) exposure ranging from 20 to 147 ng ml⁻¹. Infant and young child feeding practice (IYCF) showed that only 18% of the children from these villages were receiving minimum acceptable diet and the mean dietary diversity score (DDS) was 3 out of 7 food types. The weight-for-age Z-score (WAZ), height-for-age Z-score (HAZ) and weight-for-height Z-score (WHZ) showed that 19.4 % of the children were underweight, 37% were stunted and 2.8 % were wasted. Following the baseline, 21-day intensive training was provided to the mothers in the treatment group in all the five villages, where they were trained through a learning-by-doing process on aflatoxin free legume-cereal based food formulation and a list of better hygiene practices with periodic anthropometric measurement on the 0th, 7th, 14th and 21st days of the program. As the children were fed with the recommended complementary food that contained pigeonpea, finger millet, soya bean, maize, and vegetables rich in vitamin A, coupled with better hygienic practices and aflatoxin control, there was a 40% reduction in underweight (with 0.4 kg of average weight gain), and a 50% reduction in wasting within the period of 21 days. The study serves as a model for educating mothers in resource poor settings towards better health outcomes of their children through behavioral changes based on a short term attestation. Moreover, this is the first quantitative estimation from Tanzania of how the better practices immediately contribute to the reduction in malnutrition among young children.

www.africa-rising.net

