Malnutrition: The Largest Threat to Global Health

- Over 900 million people in the world are undernourished
- Malnutrition responsible for 3.5 million deaths each year
- Malnutrition suppresses the immune system and contributes to half of all childhood deaths
- 250,000 to 500,000 children lose their sight every year due to Vitamin A deficiency
- Over half the world’s population suffers from iron deficiency, which reduces their productivity and school performance.
- Vitamin C deficiency compromises immunity and results in poor wound healing.

Nutritional Deficiencies of Children

- Critical 1000 days/ Window of Opportunity
- Good nutrition during this critical period is essential to:
  - Cognitive development
  - Economic and social potential as adults
- Key nutrient issues: Fe, Zn, Vitamin A, Essential Fatty Acids

Fruits and Vegetables: The Simple Solution

- Fruits and vegetables improve nutrient absorption in a diet high in phytate (whole grains, seeds, pulses)
- Green leafy vegetables—Fe, Vitamin A
  - More available Fe than legumes
- Tree nuts, Portulaca—Essential fatty acids (Omega 3)
- Mango, Pumpkin, Carrot, Orange-fleshed sweet potato—Vitamin A, Vitamin C
  1/2 cup pumpkin, 2/3 a carrot, 1 mango supplies RDA of Vitamin A and Vitamin C
- Citrus, guava, broccoli, peppers, potato—Vitamin C
- Food products better accepted and possibly more sustainable than vitamin supplements or pharmaceuticals for some populations

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For more information visit: International Programs ip.ucdavis.edu or the Hort CRSP hortcrsp.ucdavis.edu

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Strategies to Address Nutrient Deficiencies in the Diet with Horticulture

- Incorporate fruit, tree nuts and vegetables into diet, along with animal products
- Methods of delivering nutrients to infants
  - Via mother’s breast milk (feed to the mother)
  - Directly to infant
  - To both mother and infant
- Processed and fresh forms of fruits and vegetables increase access, reduces postharvest losses and provide year-round availability
  - Green leafy powders to add to infant food
  - Orange sweet potato or carrot puree or powders for infants
  - Dried mangoes for year-round supply for mothers and young children
  - Tree nuts for mothers and ground up for infants

Systems approach to Address Nutrient Deficiencies

- Production of leafy greens, mango, sweet potato, carrots, tree nuts, and portulaca for diet diversification in combination with animal products
- Link production systems with local processing of improved complementary foods for infants and young children, including lipid-based supplements
- Develop a processing industry with woman’s groups to increase year-round availability
  - Microfinance
  - Appropriate technologies
    ◇ Concentrated solar drying
    ◇ Powder production and packaging
    ◇ Storage systems for dried products using Zeolite (drying material)
    ◇ Puree production and packaging
- Education of women
  - Effects of malnutrition
  - Nutritional value of horticulture crop additives
  - Methods of utilization
  - Methods of storage/processing

- For Further Information about the value of horticulture development visit our webpage at http://hortcrsp.ucdavis.edu

Healthy food choices to reduce malnutrition.