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

Developed by Kay Dewey, Mark Bell, Peter Shapland, Amanda Crump, Michael Reid and Beth Mitcham

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.