

## Session 2

### Design Strategies: Incorporating Agroecological Strategies

#### **Speaker: Steve Moore**

- Bio-intensive Farming
  - Millennial-old production technique
    - Example: Russian *dachas*
  - Permanent beds and pathways
  - Low-tech, hand-based production
- The Key Elements of Bio-intensive Farming
  - Deep soil development
  - Close plant spacing
  - Compost production efficiency
  - Multi-cropping
  - Carbon Farming
  - Diet Farming
  - Open Pollinated Seeds
  - Holistic System Design
- Bio-intensive farm management involves a combination of calorie-dense food and food that is land-efficient
  - Thinking in terms of nutrition and not just yield
    - Land use efficiency
    - Kitchen efficiency
      - Nutrient density: calories per biomass
    - Compost crop efficiency
      - Value of crop includes the relative potential of its biomass as compost
  - Diet spreadsheets can track energy ratio of cultivated crops
    - Amount of energy expended tending to crops vs. amount of energy gained from consuming crops
      - Involves calculating carbohydrate, amino acid, and vitamin profile of each crop grown
      - Involves calculating caloric value of physical labor
- Ideal Bio-intensive Diet
  - Grain crops (60%)
  - Root crops (30%)
  - Vegetable crops (10%)
- Open-pollinated seeds are critical for preserving genetic diversity
  - Traits for local pests and diseases could be in this germplasm
- Crops can also be evaluated for their calorie production per gallon of water
  - Sorghum: high calories per gallon of water
  - Parsley: low calories per gallon of water

- Additional Benefits of Bio-intensive Agriculture
  - Increased soil organic carbon
  - Reduced greenhouse gas emissions from agricultural activities
  - Adaptable to climate change