**Polyculture**

**An Approach to Sustainable Farming**

**Monoculture**: a single crop planted over a wide area.
- Used excessively on American farms, especially on corn and soy farms.

**Polyculture**: a multitude of different crops grown on a given expanse of land, either through crop rotation or planting rows of different crops side-by-side.
- Uses nutrients, space, and energy in a balanced manner.
- Increases self-reliance, food security, and economic growth.

**Polyculture vs. Monoculture**

**Disadvantages of Monoculture**:
- Depletes soil of its nutrients and water content.
- Eliminates soil microorganisms.
- Increases soil erosion.
- Reduces species diversity.
- Contaminates water.

**Benefits of Polyculture**:
- Increases biodiversity.
- Enhances soil health.
- Eliminates fossil-fuel fertilizers and pesticides.
- Promotes clean water run off.
- Reduces disease severity.
- Increases yields.
- Decreases soil erosion.
- Sequesters carbon.

**Proposal**

- Introduce polyculture to mainstream farming.
- Encourage farmers to transition to polyculture farming.
- Inform farmers of the benefits.
- Promote and provide training.
- Inform consumers of the benefits of polyculture farms.
- Encourage consumers to buy polyculture products.
- Recognize corporations that buy polyculture products.

**Mechanisms and Solutions**

- **Principles to Consider**:
  - Mimic the structure of natural vegetation.
  - Use native perennial plants.
  - Plant compatible species.
  - Maximize natural processes.
  - Place crops to ensure optimal interaction.

- **Farming Methods**:
  - Crop rotation: growing dissimilar crops sequentially on the same field.
  - Multi-cropping: the cultivation of two or more crops in the same area simultaneously.
  - Inter-cropping: the planting of smaller crops between the spaces of the larger crops.

**Assessment**

- Online survey:
  - Farmers:
    - Register with the Farm Bureau.
    - Record crop data online.
  - Inspectors:
    - Inspect crops twice a year.
    - Contact farmers if problems are present.
    - Post general data online.
    - Include survey at marketplace to compare with generalized data.
- University extension programs that aid farmers with new agricultural practices.

**Promotion**

- Inform farmers about the benefits:
  - Show farmers that polyculture farming provides higher yields to create incentive for them to transition to polyculture farming.
  - Distribute educational brochures through farming associations.
  - Arrange talks with successful local polyculture farmers to:
    - Facilitate transition to polyculture farming.
    - Offer a support network.
    - Act as a forum for queries.
- Inform consumers about the benefits:
  - Distribute brochures through farmers’ markets.
  - Advertise online and through other media.