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Polyculture: An Approach to Sustainable Farming

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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.

**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.

**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.

**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.