Notes on Greenhouse Materials

What a greenhouse does.
- temperature, levels of light and shade, irrigation, fertilizer application, and atmospheric humidity.

- Avg. rainfall
  - Sometimes heavy

- Poly film is cheapest @ .09$ sq ft.
- We need cost ≤ .02$ sq ft.

- Needs To
  - Keep in heat and water
  - Transparent
  - Last under weather conditions
  - Light Diffusion
  - Stimulate Econ.
    - Ie. made locally not imported

Plants use light from range 400-700 nm

Possible Materials
- Fiber glass
- glass
- poly film
- burlap cloth

Ideas:
- reflect light in GH
- lean to GH
Cheap sustainable way to grow food.
Kenya
How to achieve sustainable farming in Kenya?
• Material Analysis:
  o Glass
    ▪ Very costly
    ▪ Great transmissivity
    ▪ No diffusion
    ▪ Highly durable
    ▪ Difficult to transport
    ▪ Harder to assemble
    ▪ Heavy material
    ▪ 10+ years lifespan
  o Poly-film
    ▪ Cheaper, but still too expensive
    ▪ Great transmissivity
    ▪ No diffusion
    ▪ Easy to transport
    ▪ Easy to assemble
    ▪ Light material
    ▪ 6-8 years lifespan
  o Plexiglass
    ▪ Expensive
    ▪ Great transmissivity
    ▪ No diffusion
  o Fiberglass glazing
    ▪ Expensive
    ▪ Great transmissivity
    ▪ No diffusion
    ▪ Light
    ▪ Durable
    ▪ Hard to transport
  o Frost Cloth (polypropylene spun bonded non woven cloth)
    ▪ Cheap material
    ▪ Less transmissive
    ▪ Light is diffused
    ▪ Easy to transport
    ▪ Easy to assemble
    ▪ Short lifespan