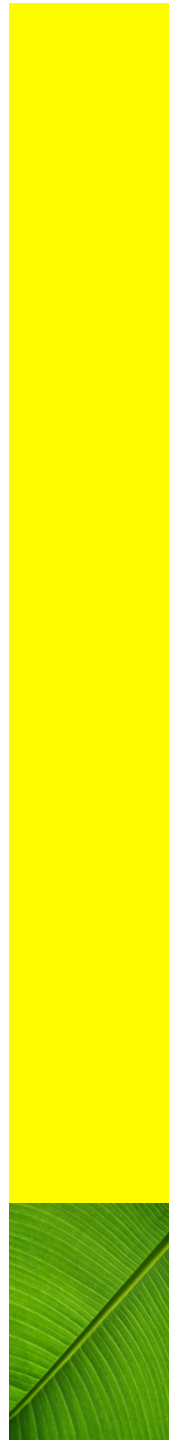




Banana Leaf Pad Assembler

October 8, 2009
2.009 Fall 2009
Team Yellow B

Laura Aust, Corey Garvey, Amrita Saigal,
Katherine Smyth

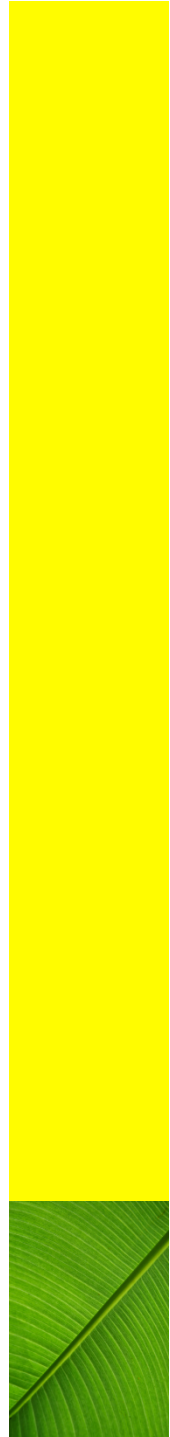


Sanitary Protection

- Problem: Millions of girls and women in developing countries lack access to sanitary protections.

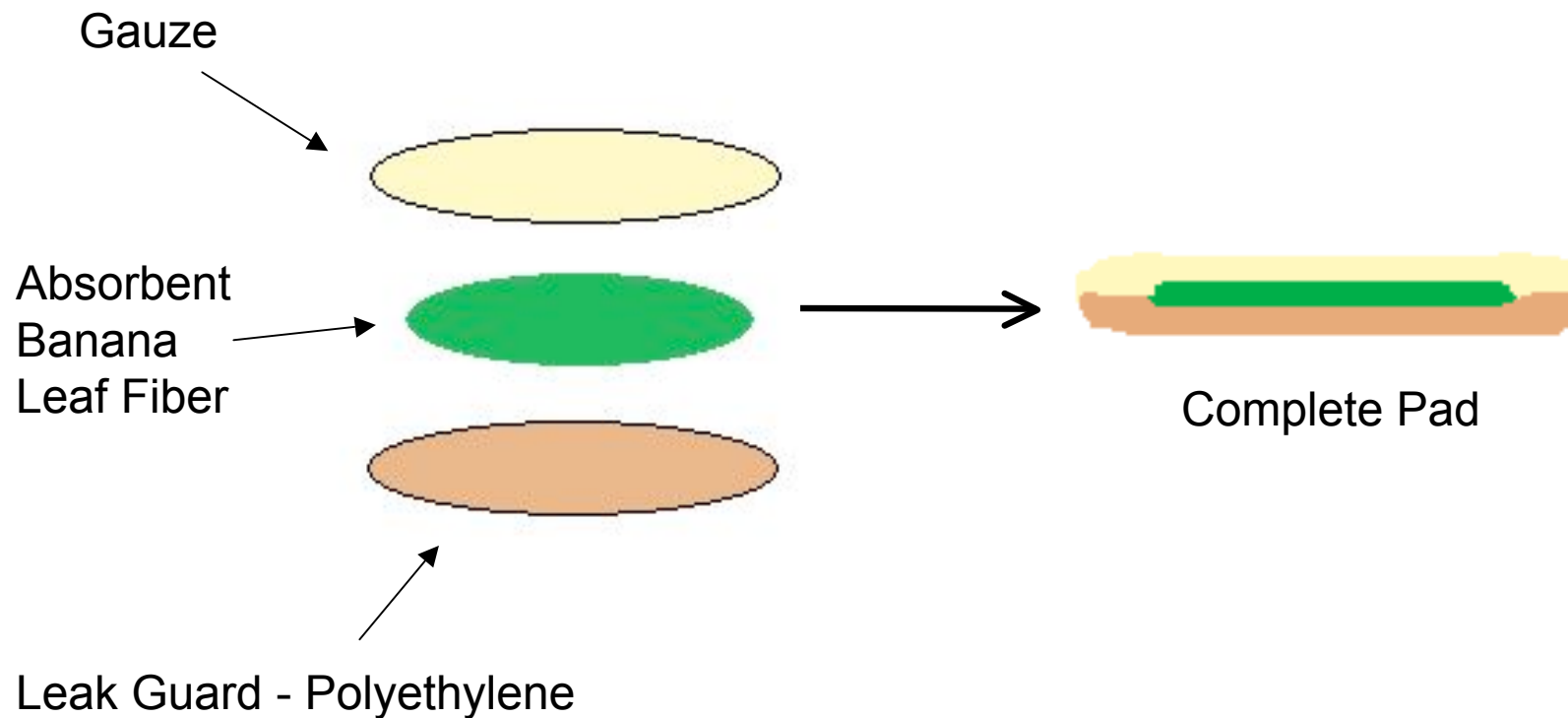


- Solution: inexpensive banana leaf pads



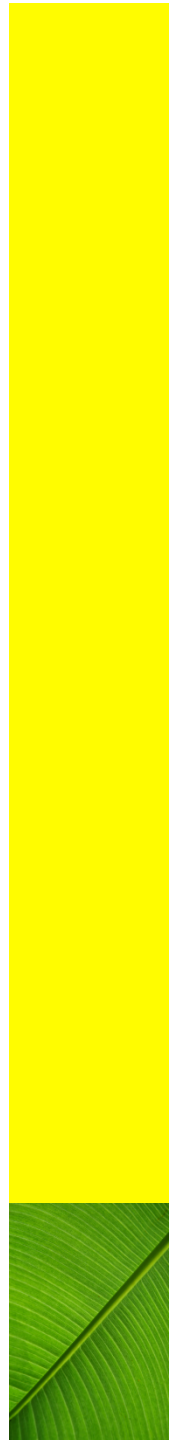
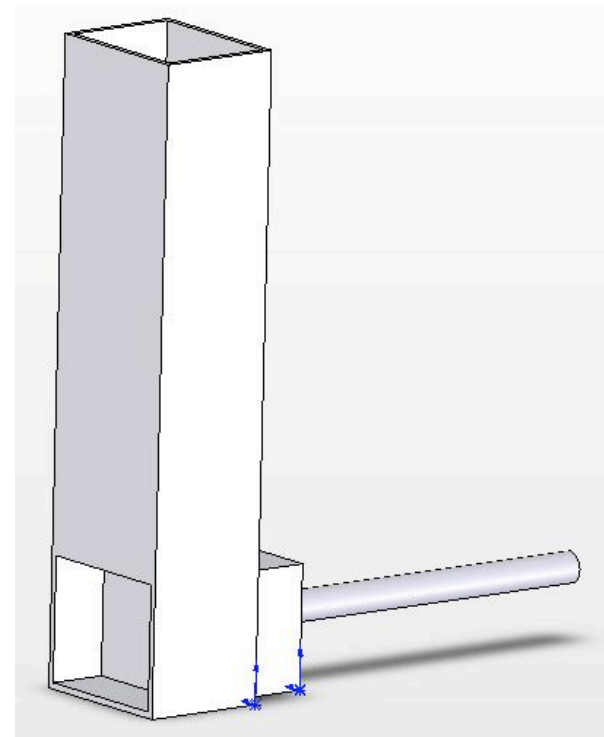
Pad Assembler

- Goal: Design process to extrude banana leaf fiber and assemble three parts of pads together



Pulp Compression and Stretching

- Banana Leaf Pulp Experiments



Pulp Compression and Stretching

- Cotton Model

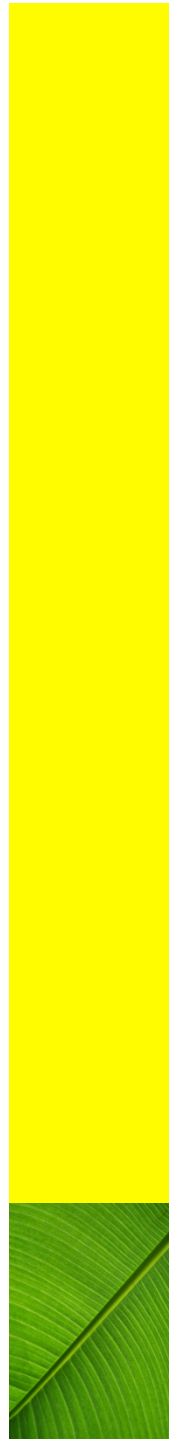
Compression Force (F):
$$F = \frac{EA_0 \cdot \Delta L}{L_0}$$

Steam Force (FS):
$$F_S = \frac{m_c \cdot c_p \cdot (T_i - T_f)}{\Delta L}$$

Rolling Force (FR):
$$F_R = 2m_R \cdot \omega^2 \cdot R$$

- Conclusions

- Rollers compress cotton with thickness < 2cm
- Steam and rollers compress cotton with thickness < 15cm



Crimper

Bond between
gauze and
polyethylene

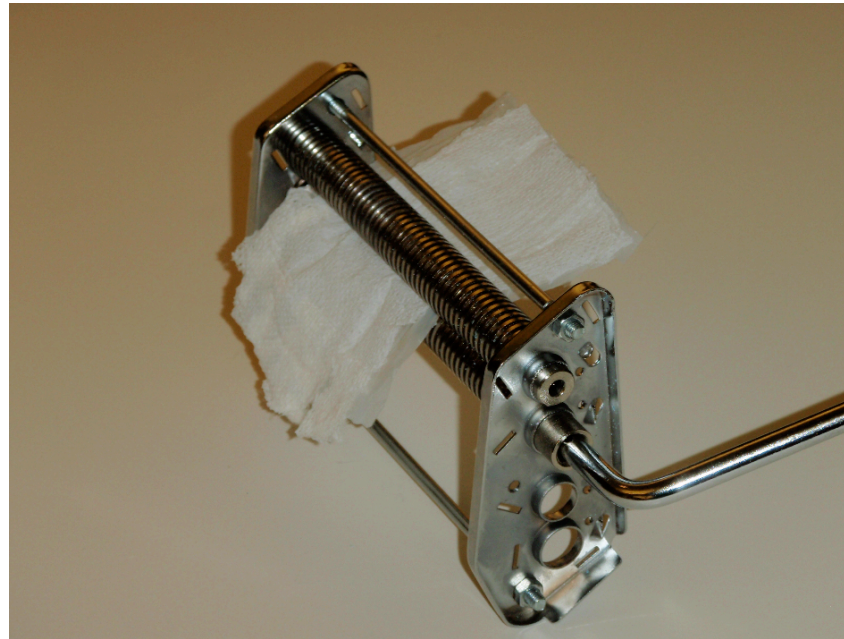


Three Methods to Bond Gauze to Polyethylene

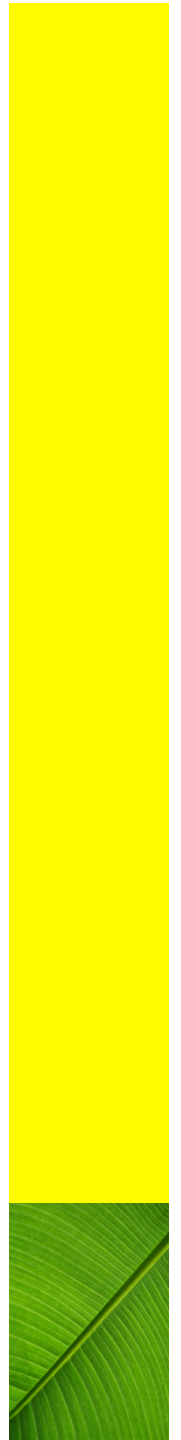
1. Pressure
2. Heat
3. Glue



10/8/09



Yellow B - Banana Pad
Assembler



Banana Leaf Pad Assembler

