Coolbot Coolroom With Alternative Insulation, UCD

The preservation of certain transported goods requires that the transit container be cooled. This project aims to compare the effectiveness of different insulating materials in preserving the temperature of this “cool room” while minimizing energy costs. Current ideas for the variable insulating material include rice hulls (loose product), straw bales (dense straw product), and spray-on polyurethane (foam product), which are all relatively accessible in rural areas; the clients are open to additional ideas as well. A more ideal cool room design will reduce the proportion of goods lost during transportation while also reducing the amount of energy required to preserve them. We are working in Southeast Asia, Africa, and Central America. Hopefully a solution can be applicable in all regions.

Design Challenge:

- Select one insulation type and construct a prototype cool room
- A Coolbot-controlled refrigeration system should be used
- Students will modify and test the cool room with the hopes that the lessons learned can be applied to designs using other insulation materials, ultimately allowing the researchers to determine which design and insulation type is the most effective.

Partner Organization/Contacts: Horticulture Innovation Lab: Archie Jarman, Michael Reid, Jim Thompson

Country/Community/Location: UCD Horticulture Innovation Lab