

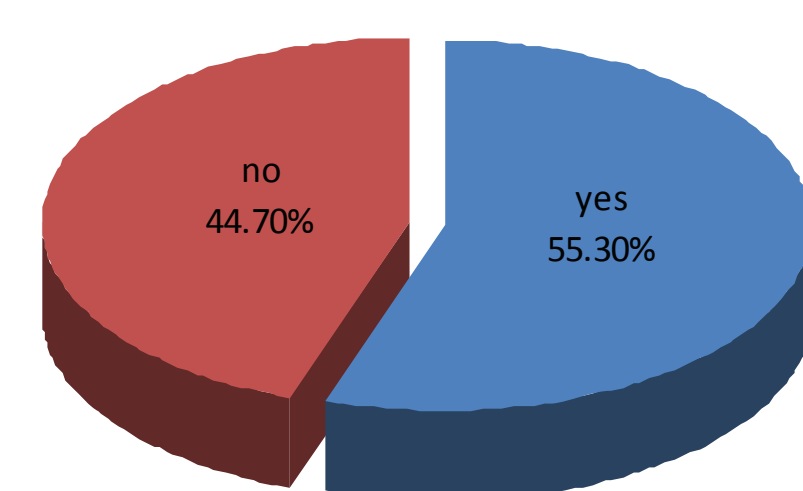
## BACKGROUND

- Condensate is the liquid produced by A/C units when water vapor in the air passes over the unit's cooling coils
- Every week during the summer, an approximate 49 million gallons of condensate are wasted in greater Chicago
- In Texas & at ASU, condensate has been recycled for irrigation

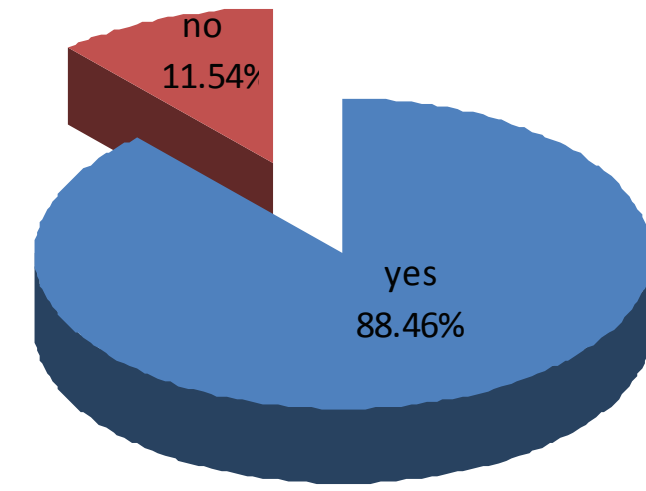
## RESULTS

### MARKET SURVEY

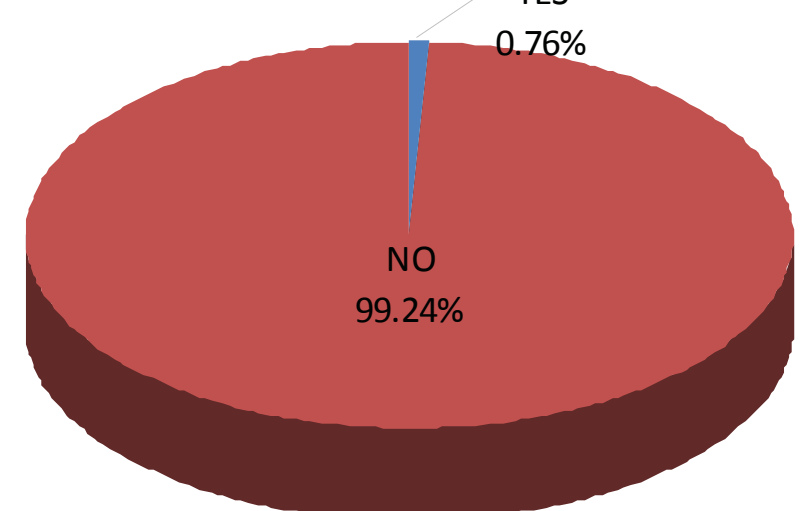
Did you know that your A/C unit produces condensate?



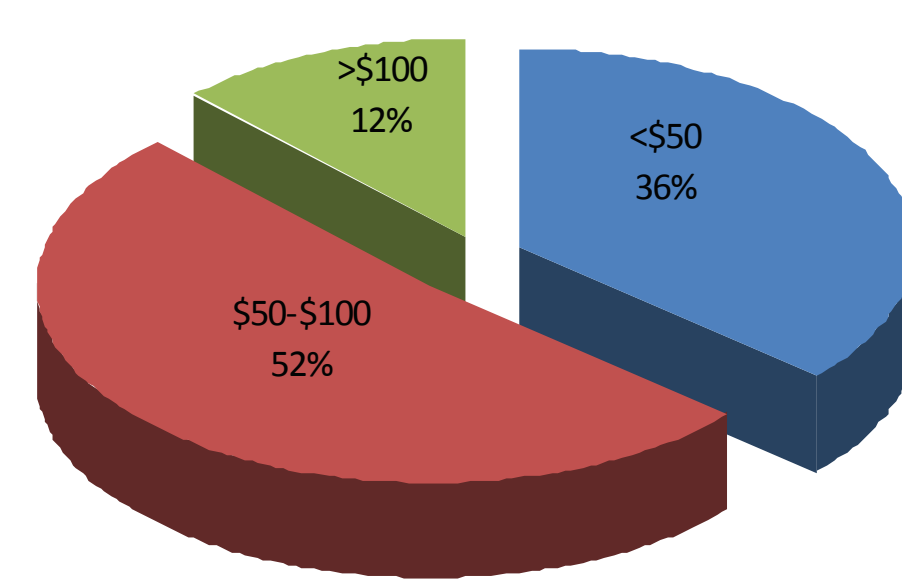
Would you be interested in purchasing a system to recycle A/C condensate?



Are you currently recycling your A/C condensate?



How much would you be willing to pay?

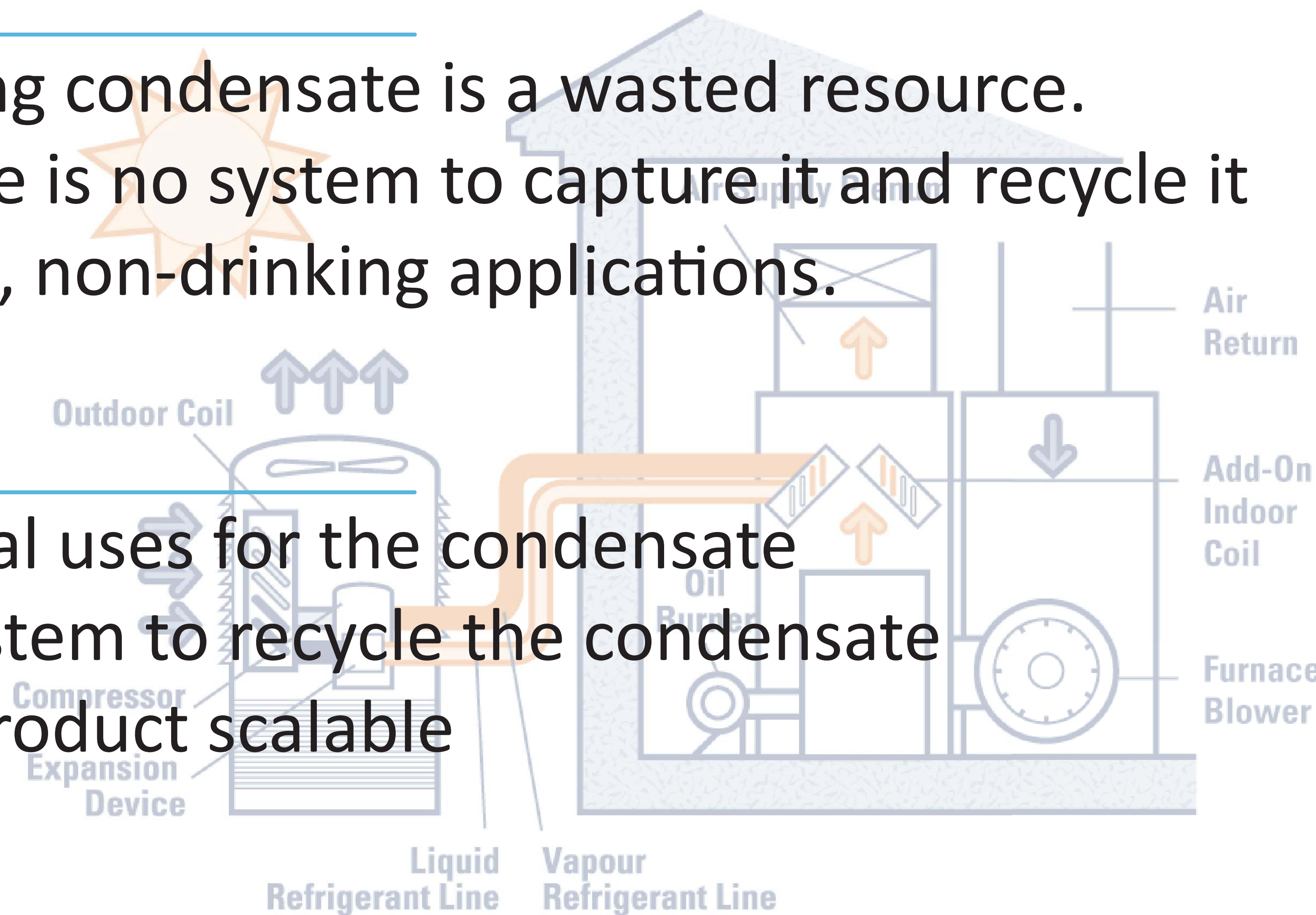


## PROBLEM

- Air conditioning condensate is a wasted resource.
- Currently there is no system to capture it and recycle it for residential, non-drinking applications.

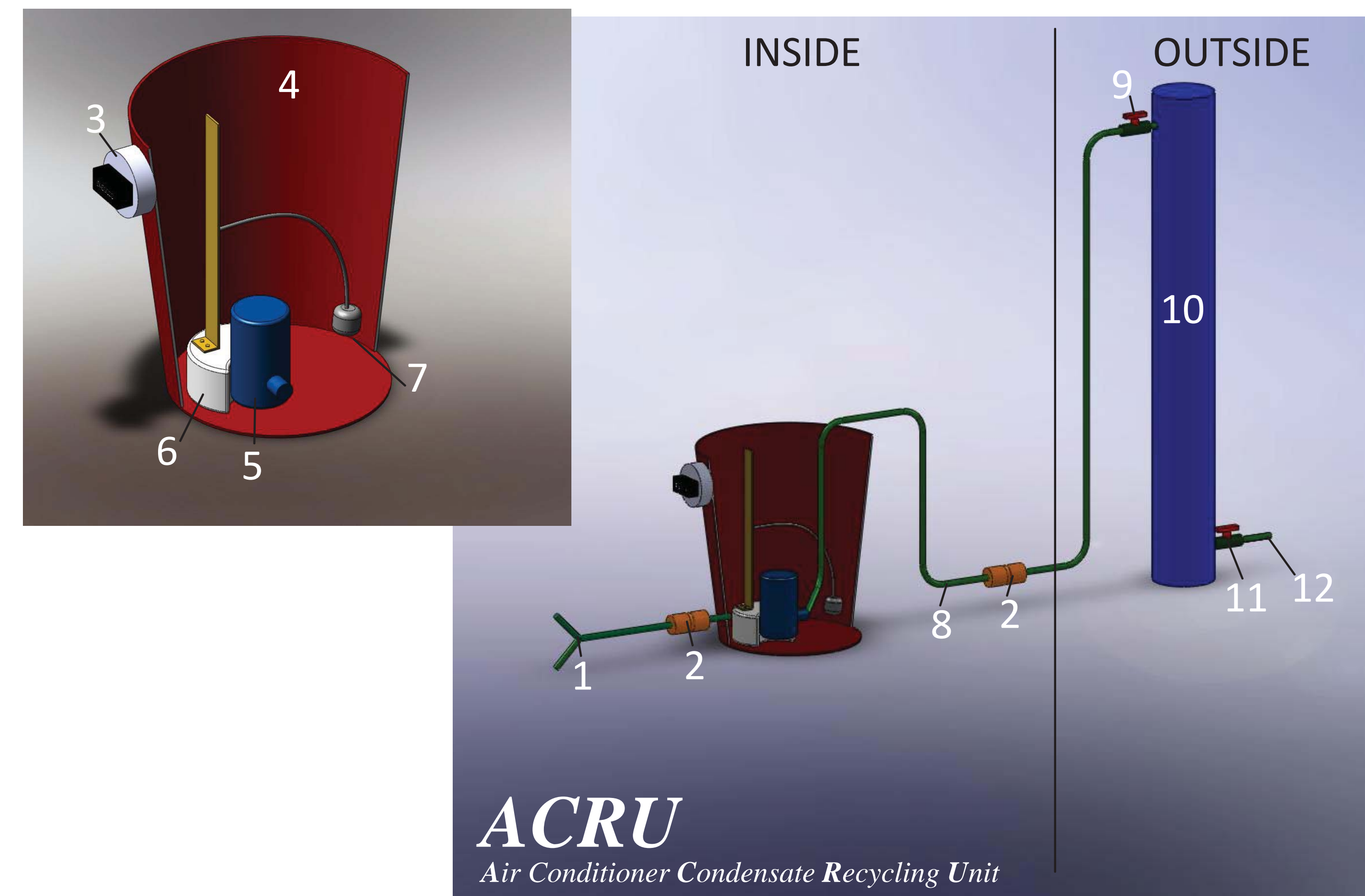
## OBJECTIVE

- To find practical uses for the condensate
- To design a system to recycle the condensate
- To make the product scalable



## PROTOTYPE

1. 3 WAY VALVE
2. CHECK VALVE
3. CYCLE COUNTER
4. TEMPORARY CONTAINER (5 GALLON BUCKET)
5. BILGE PUMP
6. 5" PINE BUN
7. FLOAT SWITCH
8. FLEXIBLE TUBING
9. PVC FITTING
10. STORAGE TANK (10' LENGTH OF 6" DIA. PVC PIPE)
11. BALL VALVE
12. ACCESSORY HOSE

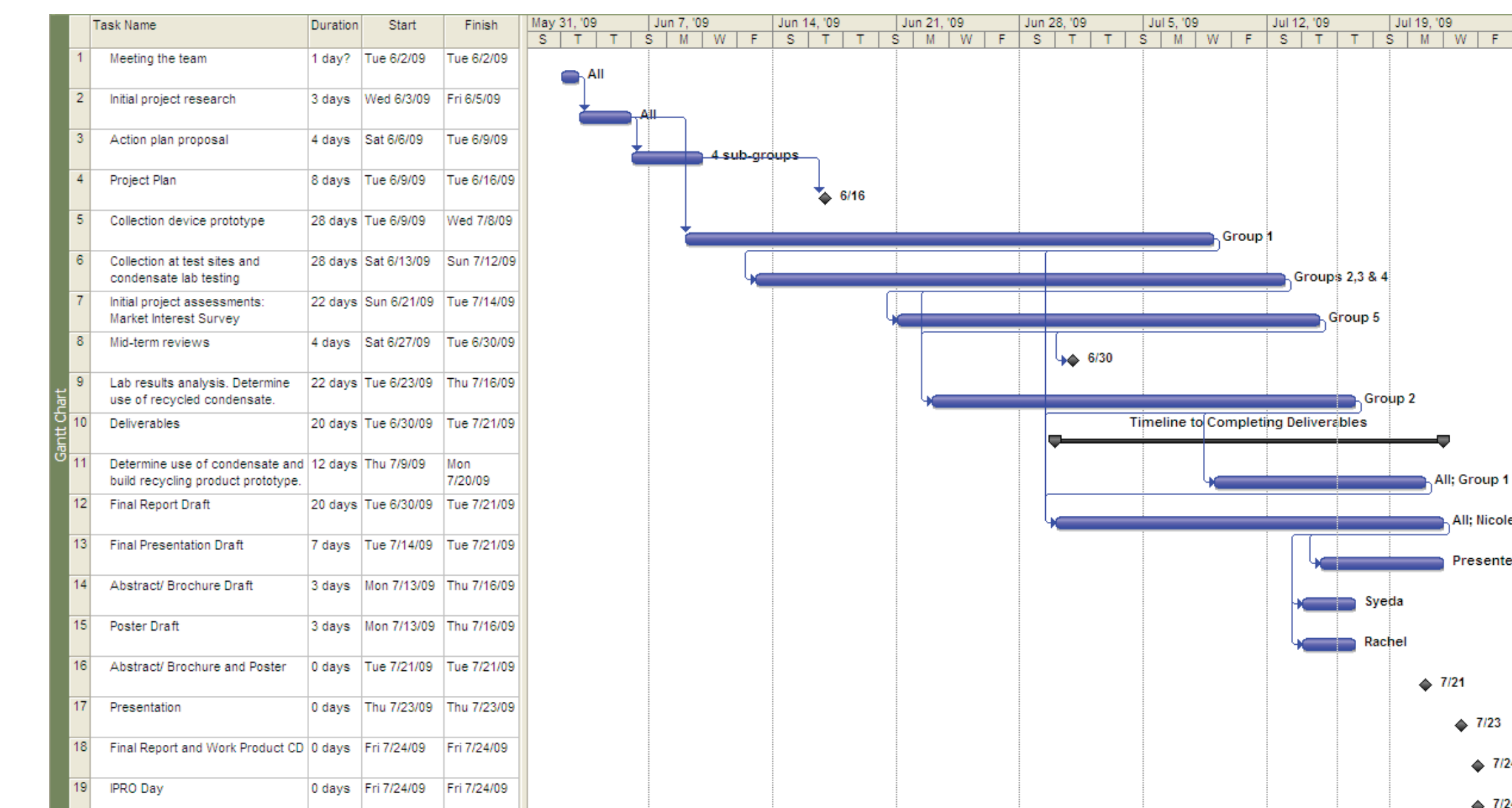


## CONCLUSIONS

- A substantial amount of A/C condensate is produced
- There is interest in a product that recycles condensate & most consumers are willing to spend \$50 - \$100
- The ACRU is a product designed to collect and reuse condensate for outdoor purposes
- Analysis of condensate samples needs to continue to ensure its safety
- Market analysis needs to continue to determine target market and reach economic goals.

## METHODOLOGY

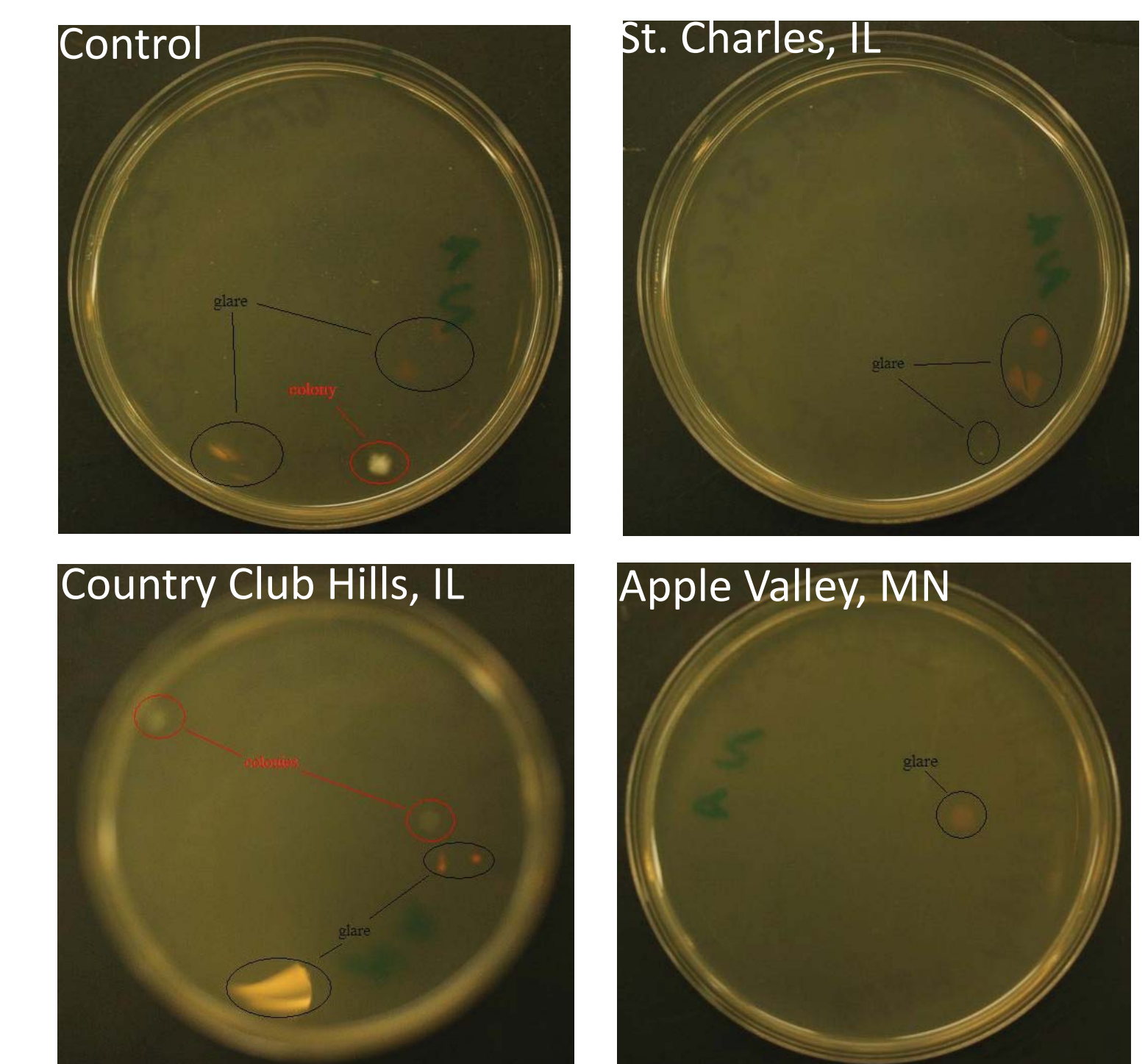
- Initial Research
- Field Research & Collection
- Testing & Analysis
- Prototype Development



## LAB TESTING

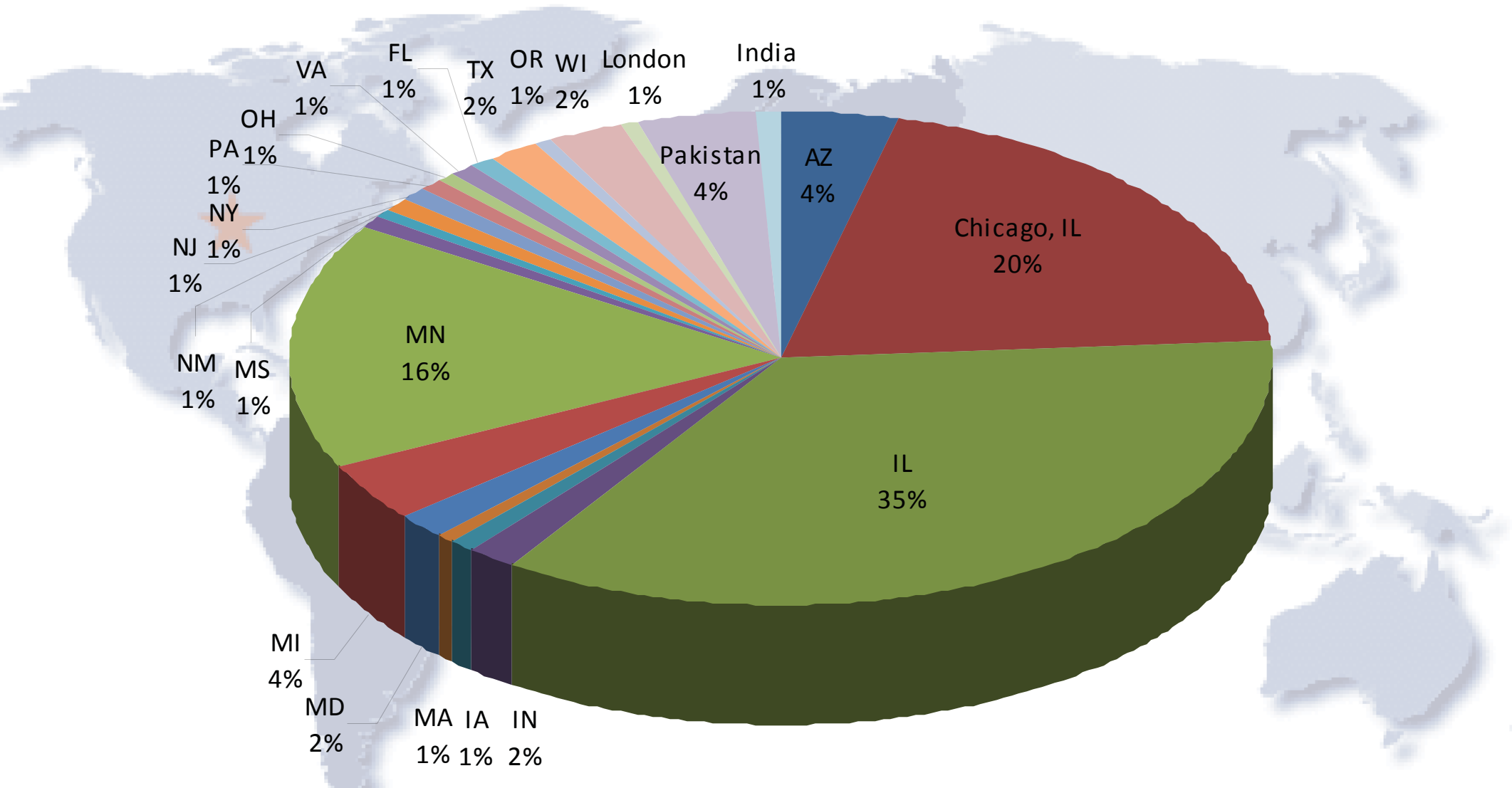
### Bacterial

- Testing on samples done on 6/24/09 as follows:
1. Samples from each site were brought to lab in their sterile glass containers.
  2. 1mL of each sample was placed onto its own nutrient agar plate using a micropipette with a new sterile tip for each sample.
  3. The sample was spread out evenly to cover the entire plate (spread-plate technique).
  4. One additional nutrient agar plate was inoculated with distilled water as a control.
  5. The plates were incubated for 24 hours at 37°C



### Chemical

1. The condensate samples will be analyzed for pH, nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), and volatile organic compounds using gas chromatography
2. Lead and Copper will be tested for using atomic absorption spectroscopy



\* Survey conducted was intended to study market interest in purchasing a recycling product for A/C condensate.  
\*\* Social demographics of survey participants were not taken into consideration because identification of target groups for marketing purposes was not a priority.