



## 1. Project background



# Dairy Lab Automation

- Partners

- Central Counties DHIA
  - Atwater, California
  - Christine Hackler
  - Provided vision & funding
- Ram Mechanical, Inc.
  - Ceres, California
  - Steve Nelson
  - Automation expertise & fabrication
- Advanced Instruments, Inc.
  - Norwood, Massachusetts
  - Milk analysis



## Ram Mechanical, Inc. Services



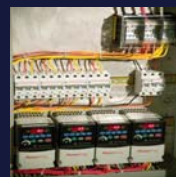
Mechanical Contracting



Custom Manufacturing



Engineering



Electrical and Controls



Robotic Integration



Bottled Water Equipment



Laboratory Automation



Dairy Automation

[www.ram-mechanical.com](http://www.ram-mechanical.com)

## Automated Lab Program Objectives

- Automate the sample handling, loading and unloading of two analyzers
- Improve test results through uniform sample handling
- Reduce labor costs
  - Reduction in staff
  - Reduced insurance cost



## Typical Automatic Lab System

- Staging table(s) for incoming racks (60 or 100 count)
- Reliable Fanuc Robot with custom manufactured End of Arm tooling
- Automatic temperature controlled water bath(s)
- Conveyor system with 1x10 cassettes
  - **Replaces conveyor from analyzer manufacturer**
- Milk sample analyzers (Filter or FTIR)
- Vial washing station with drying, preservative application and capping
- Up to 1200 Samples per hour



## Measurable Results

- Lower workers compensation exposure
  - By elimination of repetitive stress injury activities
- More reliable results for your clients
  - As a product of more consistent, uniform sample handling
- Labor cost savings
  - Lower direct labor cost
  - Lower preservative cost
  - Ability to use existing staff to expand operations



## Additional Benefits

- Sample vials ready to go back out the same day
  - Reduced drying space and expense
- Uniform application of preservative
  - Better mixing when new sample is added to vial
- Improvement in lab morale
  - Acquisition of new skills



## Key Features

- No significant modifications of analyzer
  - Racks & conveyor updated to accommodate automated loading
- Analyzers and robot can be acquired independently
- Analyzers and robot can be operated independently
- Analyzers and robot can be configured to fit individual lab requirements
- Wash station can operate during periods when analyzer is down
- No software conflicts
- Compatible with RFID systems



## Upcoming Features

- Automatic De-stacker or Stacker
  - Allows a stack of up to 10 racks to be loaded onto staging table, or stacked after completion
- Injection Molded Racks
  - Strong, lightweight and durable
  - 10 x 10 configuration
  - Stackable
  - Allows for automated or manual handling
  - Designed for use in water bath
  - Taking orders now!
- Sour sample detection
  - Electronic nose alerts operator to sour samples



# Recap



- *High reliability*
- *Low acquisition costs*
- *Rapid return on investment*
- *Low maintenance costs*
- *Low cost of ownership*
- *User friendly*
- *Installation, on-site training*
- *24 / 7 service and support*



# Thank you

Please visit us at Booth 106

# Questions?

