Winter Greens Wash/Pack Shed Efficiency & Food Safety Considerations

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Goals of This Training

1) Provide more detail on setting up an efficient wash/pack facility
2) Focus on farm food safety
3) Maintaining post-harvest quality
4) Planned topics:

Wash/Pack Location
Wash/Pack Flow
Structure
Finish Surfaces
Utilities (Electric, Water, Heat, Ventilation, Drainage, Lights)
Drains
Crates and Bins
Lighting
Washing
Sorting
Draining / Drying
Packing
Coolers
Going to Market

What other topics and questions are on your minds?

Each Farm is Unique

- individual needs
- different pieces of equipment from tubs to root barrel washers
- indoors in a barn, garage, shed, hightunnel
- outdoors under a canopy or overhang

Ways to Use Space to your Advantage

- a facility should be set up to wash and move produce efficiently while getting the job done effectively.
- adaptable to a currently existing space or starting from scratch, plan accordingly.
- you can customize to your specific situation, budget and needs

Location

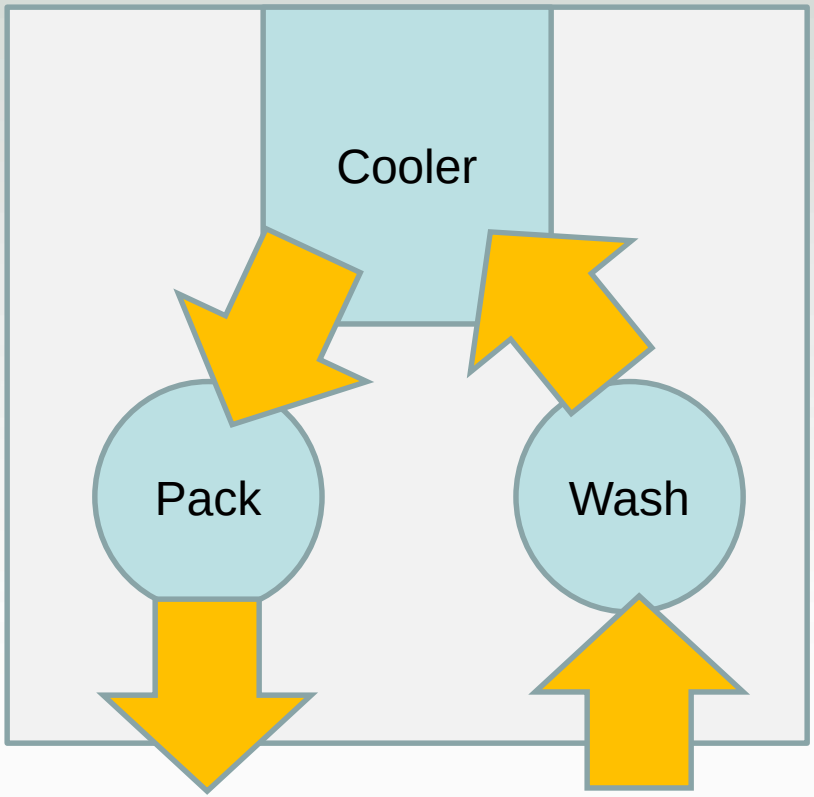
- Relative to harvest, cooler, utilities…

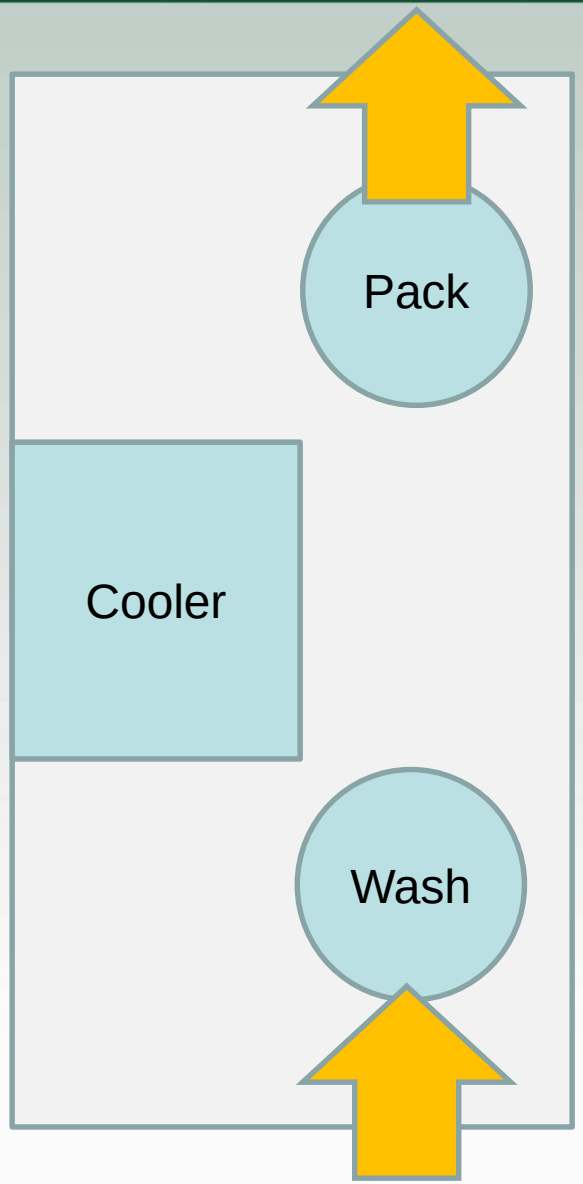
Flow of People / Work Health and Hygiene

- Differentiate crews by task – harvest vs. wash/pack
- Or think about “clean breaks” between tasks
  - Wash hands, change boots, etc.
- Handwashing Sink
- Bathroom / Portalets

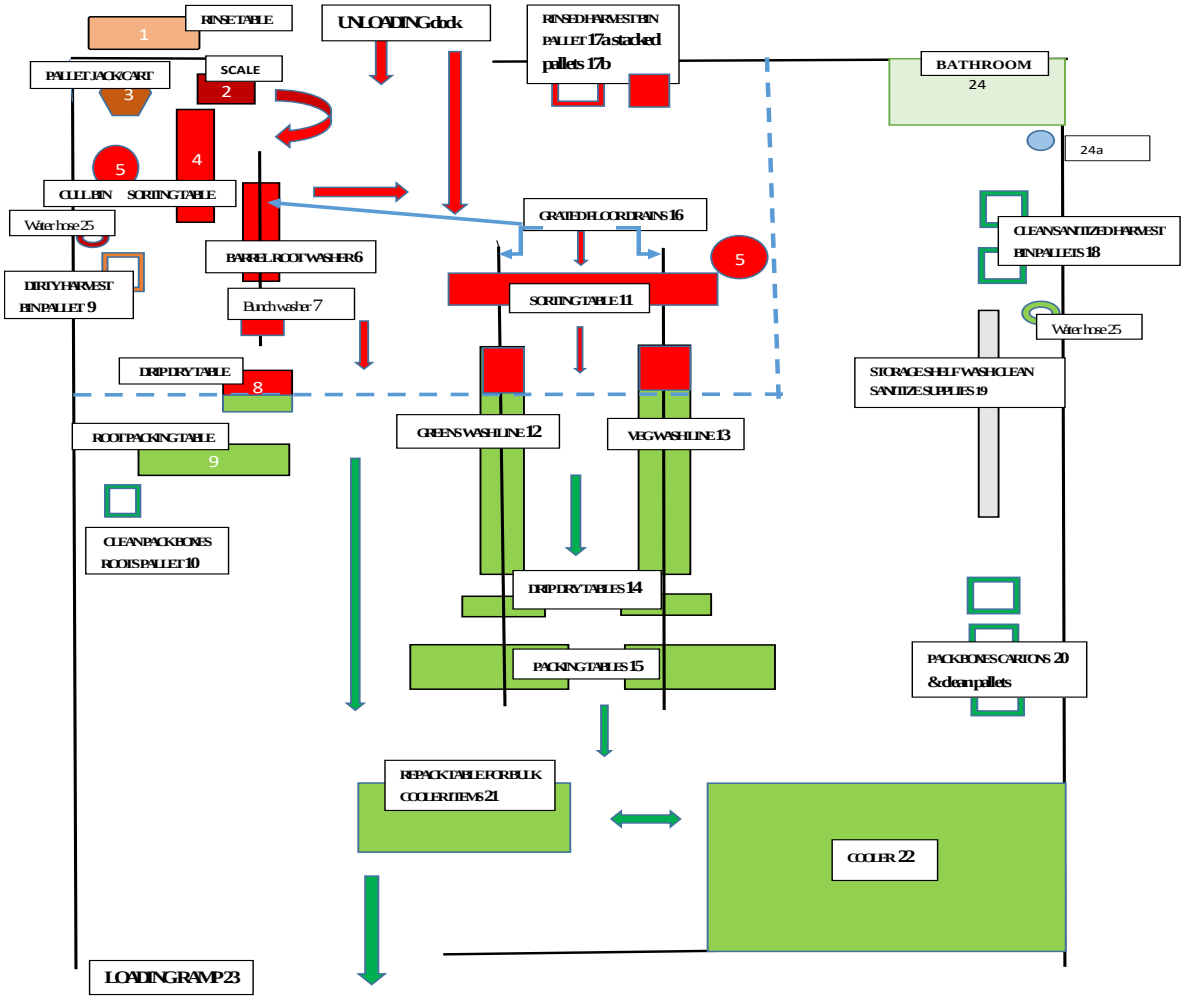
Flow of Product

- Smooth, single pass flow





Wash and Pack Facility Layout Diagram: See key on following page



Design Fundamentals

- incorporate practices that reduce microbial risk
- how easy is it to clean?
- cleanable walls
- great drainage

Design Fundamentals

- room to move
- product flow
- dirty to clean
- wet to dry

Produce Safety Rule Highlights

- This is not a PSA Grower Training.
- If you have had a PSA Grower Training, this is a review.
- If you haven't had a PSA Grower Training, plan on it.

Contamination Sources

Humans

Soil

Produce

Animals

Buildings
Equipment
Tools

Water

Produce Safety ALLIANCE

Steps Towards Produce Safety

1. Assess Produce Safety Risks
2. Implement Practices
3. Monitor Practices
4. Use Corrective Actions
5. Keep Records

Produce Safety ALLIANCE

Implementing Practices to Reduce Risks

- Focus on preventing contamination
  - Cannot reliably remove contamination
- Address risks most likely to have the biggest impact on produce safety first
- May require modification of current practices and additional training for farm employees
- May require capital investment
- You may already be doing the right thing!
- Ask for help and seek training if you are unsure

Structure

- Sound structure
- Prevent wildlife intrusion
- Smooth and cleanable surfaces
- Lighting
- Drains
- Ability to dry between uses

Dunk Tanks and Washing

- Do you need to wash?
  - Soils
  - Production methods
  - Markets
- Smooth and cleanable
  - Stainless
  - Plastics
- Moveable? On wheels?
- How will you drain?
- Managing / treating water
- Benefit of precooling

Spinners

- Manual options (2.5/5.0 gal)
- Washing machine conversions
- Using inserts
  - Bags
  - Perforated Plastic Cans
- DIY vs. Kits
- Commercial Units
- **Cleanability**

Sammic ES-200
$3,700

Kilpatrick Family Farm

DryYourGreens.com
$97 course, $347 kit
$1497 complete system

UpstreamAg.com
Universal Motor Control
$250

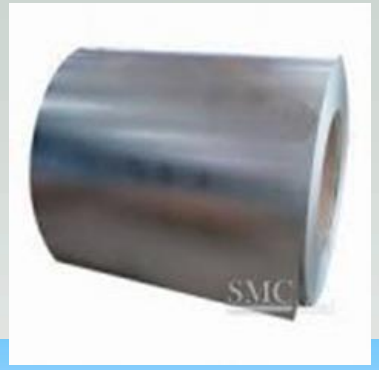
Panelless Design
$TBD

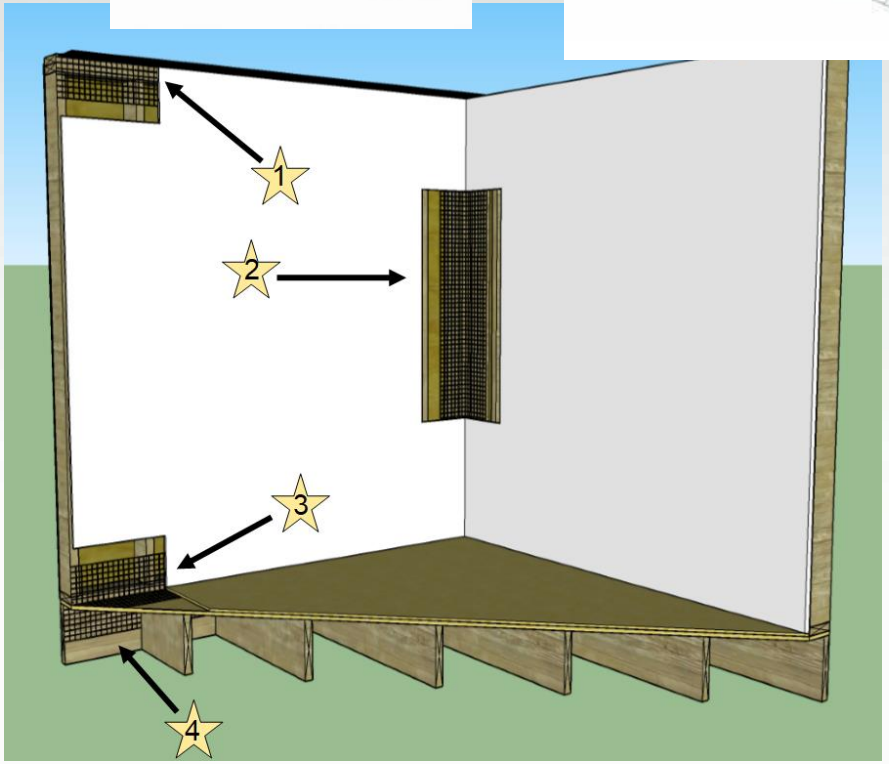
Choice
$60

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Rodent & Pest Control

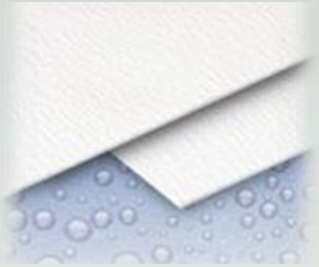
- Remove Food
  - e.g., cull piles
- Limit Access
  - Tight construction
  - Flashing / wire mesh / hardware cloth at corners
  - Closed containers
  - Cement curbs
- Reduce Population
  - Bait, trap, kill



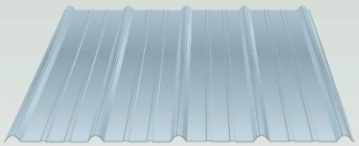


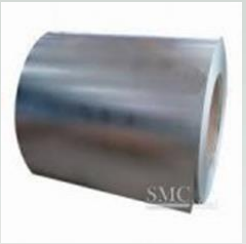
Smooth and Cleanable Materials

Fiber Reinforced Plastic (FRP) aka “Dairyboard”
$1.03-1.92 / ft^2



WallTuf
$1.25 / ft^2





Galvanized Aluminum (Galvalum)
$0.76-0.95 / ft^2

TrussCore
$1.52 / ft^2

Extrutech
$2.20 / ft^2

Utilite
$1.85 / ft^2

Ribcore
$0.77 / ft^2

Drains

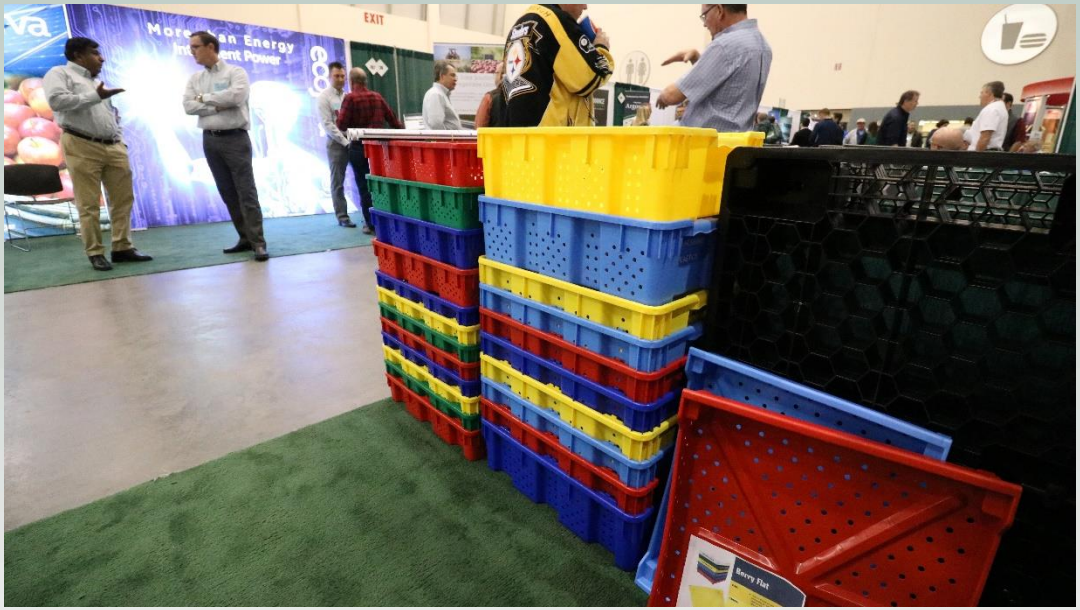
- Evaporator pan drain
- Floor drains
- Intentional routing
- Keep liquid off of product
- Keep product off of floor
  - And away from walls
- Condensation
  - Airflow and space
- Same cleaning approach

Drying

- After cleaning and sanitizing
- Allow time to completely dry
- Air movement
- Add some heat
- Safety – GFCI, controls

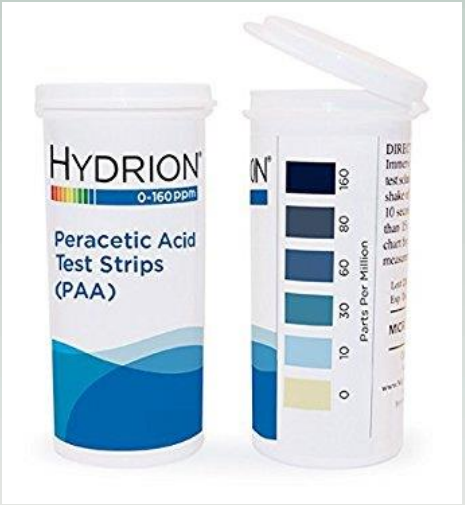
Containers

- Smooth and cleanable
- Designated – harvest vs. storage vs. distribution?
- How to clean?
- How to sanitize?



Water

- "Postharvest Ag Water"
  - no detectable generic e. Coli
- Single pass
  - Sample at source
  - Treat as needed (antimicrobial solutions aka sanitizers, UV, etc.)
- Recirculated / reused water
  - Probably best to avoid if at all possible
  - But, can monitor and redose as needed



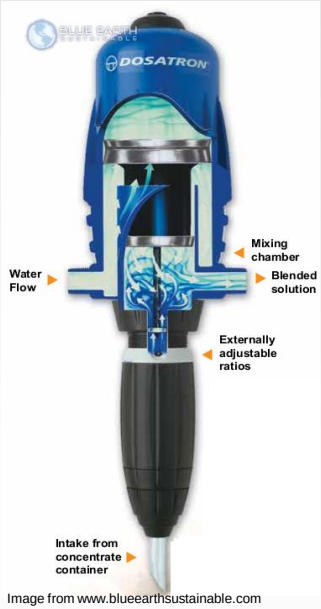


Image from www.blueearthsustainable.com

Antimicrobial Solutions aka Sanitizers

- Use an antimicrobial solution labeled for the use
- Follow label
  - Surface preparation
  - Concentration
  - Time of application
  - Rinse?
  - Disposal
- Check on material compatibility

- PPE
- Ventilation

¼ Turn 3/4" Male NPT threaded PTFE (Teflon™) Spigot Valve – makes dispensing antimicrobial solutions easier.

Equipment

- Covered vs. uncovered produce – “rarely consumed raw”
- Is it cleanable? Pressure wash – outside.
- Training on cleaning.
- Intentional drains
- Do you let it dry?

Coolers

- Smooth and cleanable surfaces
- Good thermostat
- Monitor – clipboard, logger, remote monitoring

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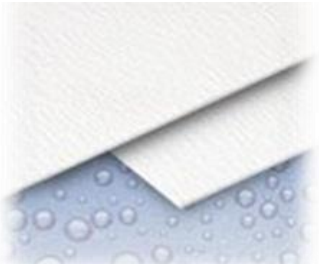

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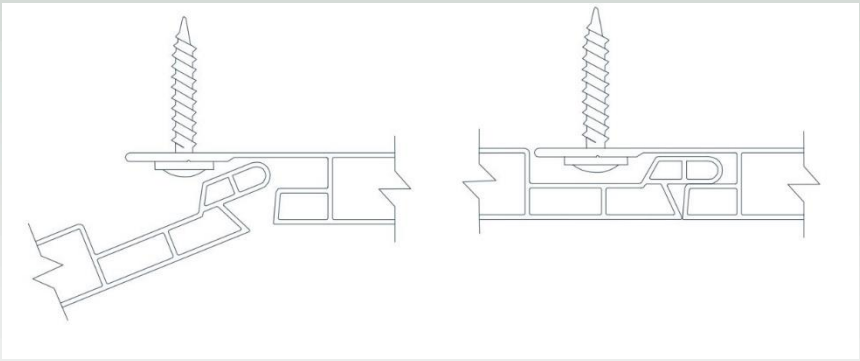
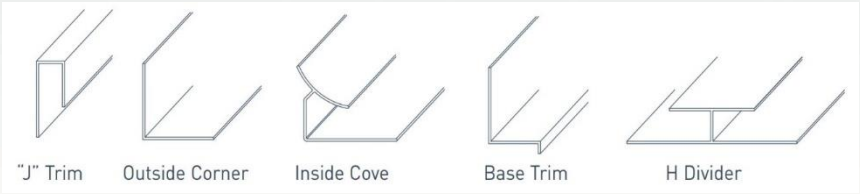




Thermostats

- Digital
- Remote bulb
- Display that shows
  - Setting
  - Actual
- Output indicator
- Remote monitoring, logging

…and have a calibrated thermometer to check your thermostat.

DeltaTrak, $30

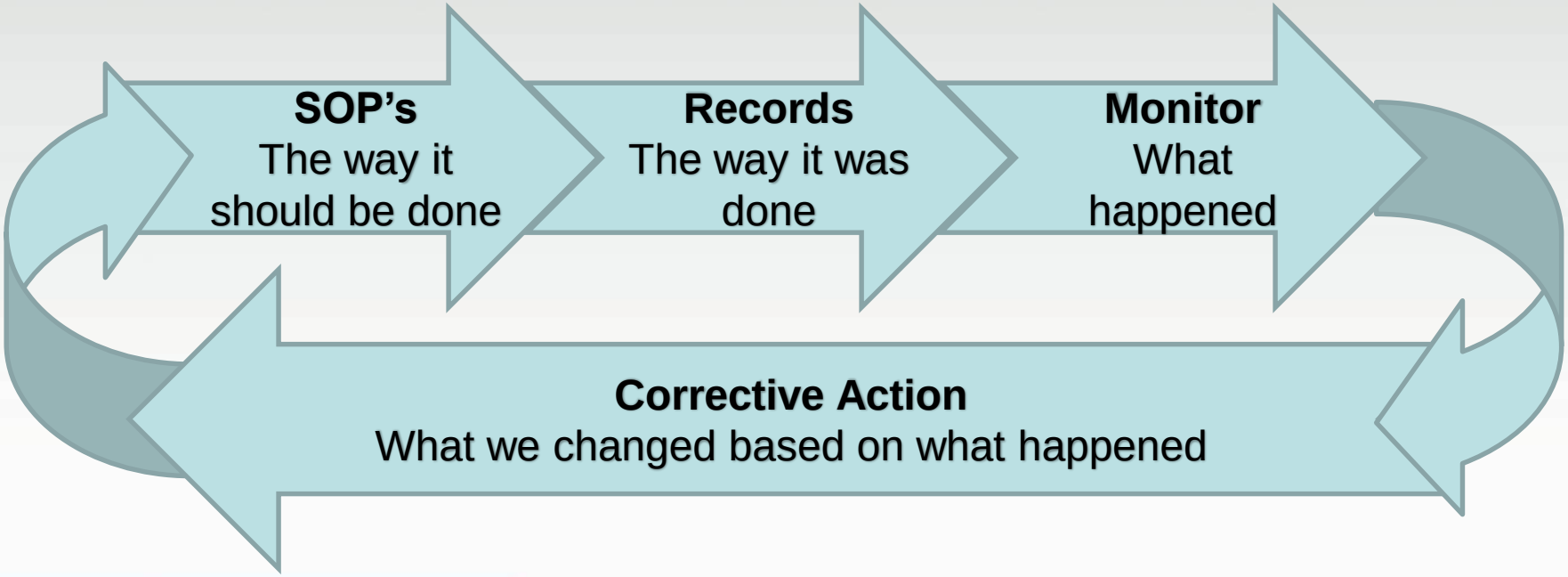
FarmTek: Dwyer
$100

Johnson Controls
A419, A421. $60-100

Ranco ETC
$50-100

Culture / SOP's / Records

- "The measured variable improves."
- If you measure, record and review as a team, you will discover opportunities for improvement.



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