

# The Tools We Use:

## Outfitting your operation for efficacy and efficiency

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Smithsonian Conservation  
Biology Institute

# Assessing your needs

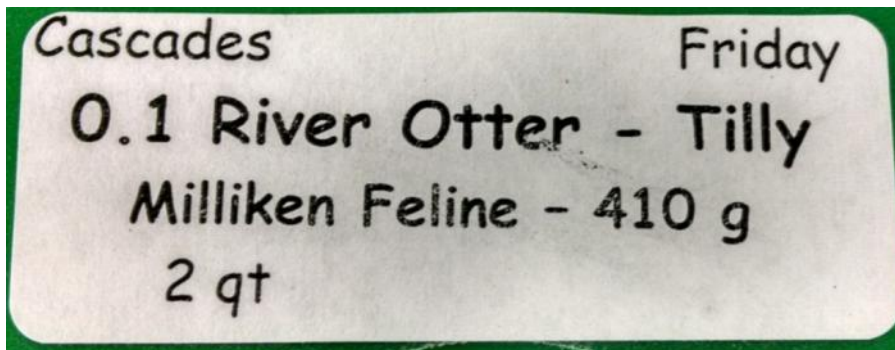
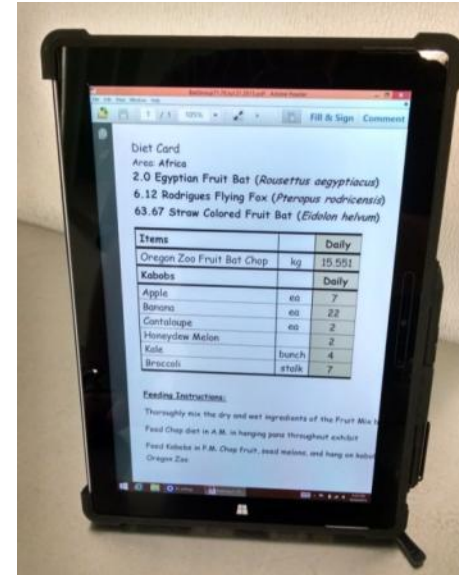
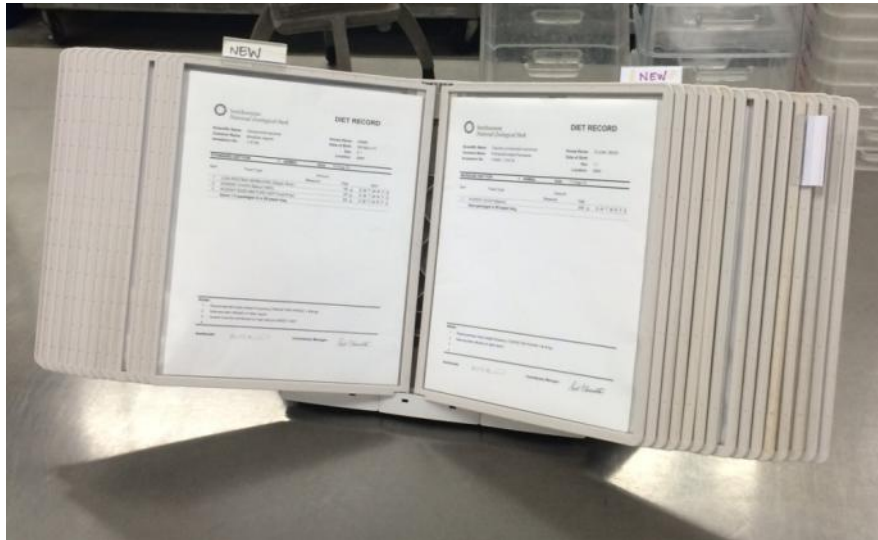
- Institutional needs
  - Animal/Species Needs
  - Safety
  - Sanitation
  - Collection Size
  - Centralized/Decentralized Operation
- Space/Resources Available
  - Do you have room in your kitchen or to store it?
  - Can it be easily installed?
- Staffing Requirements
  - Will it take more time?
  - Will it make work more efficient?
- Funding Available
  - Will it reduce waste/staff time, thus pay for itself?
  - What is the initial investment?



# Kitchen Prep



# Kitchen Organization

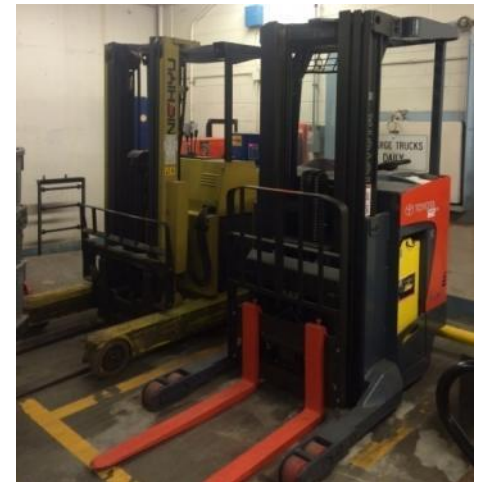




# Food Safety & Sanitation



# Materials Handling





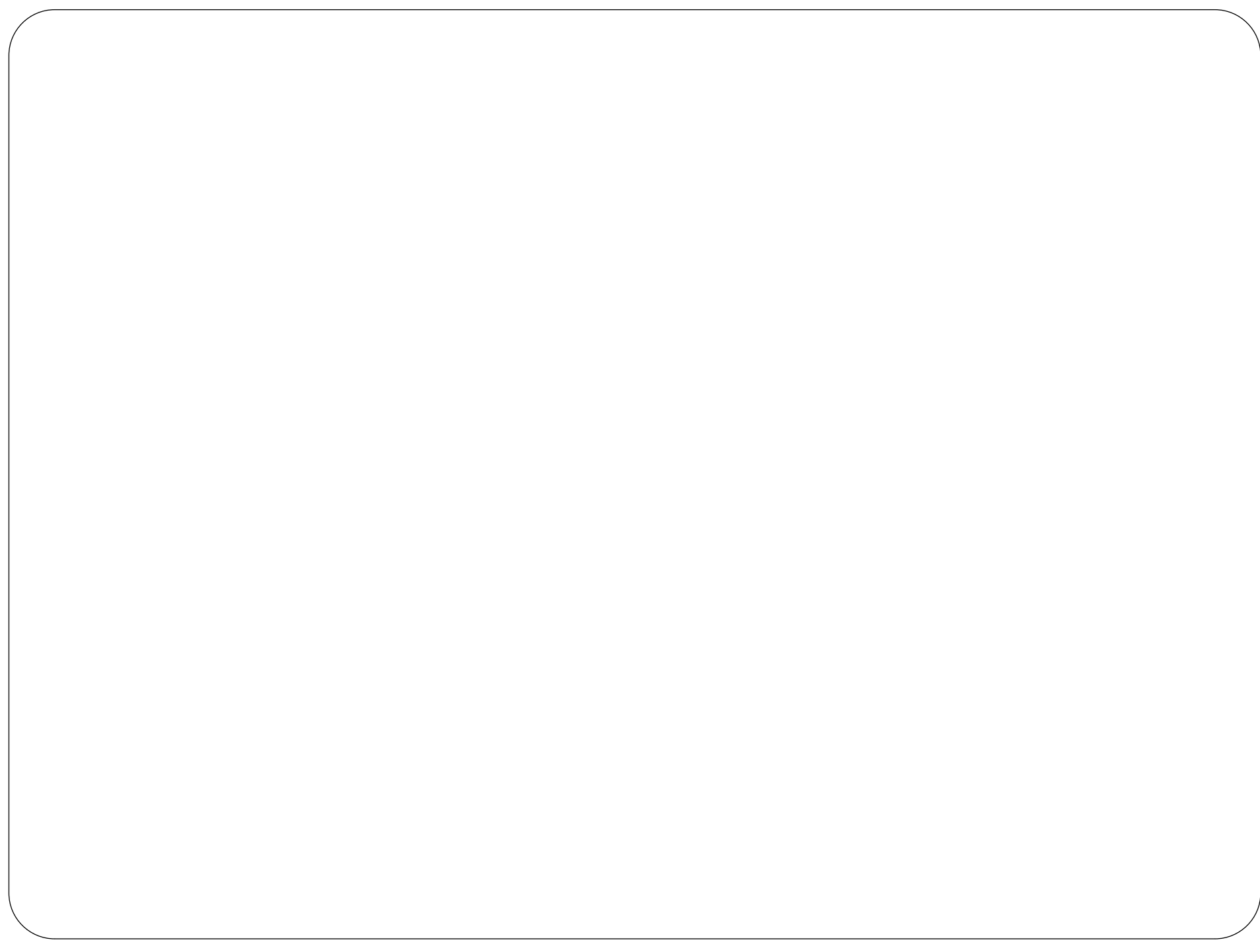
Final Word

Need?



Have?

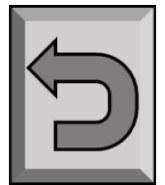






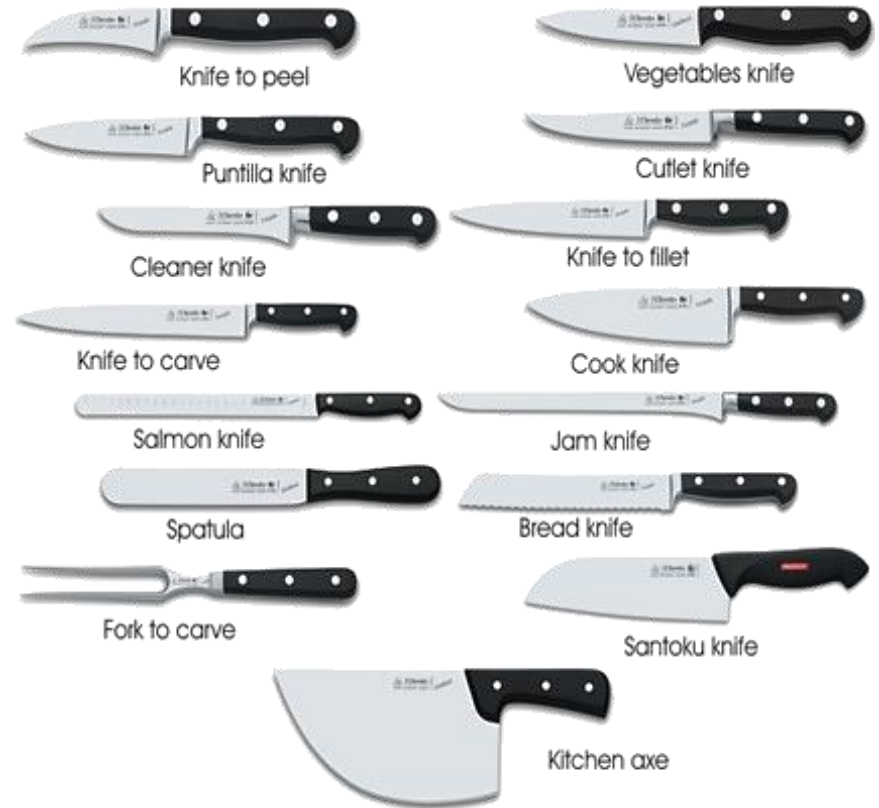
# French fry cutter

- Quick, manual way to chop produce
- Inexpensive and easy to install
- Cleaning requires simple disassembly
- Not all types are dishwasher safe
- Ergonomics are crucial when considering installation



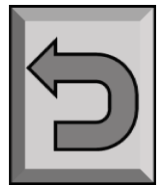
# Knives, Sharpeners, Gloves, etc.

- Choose the right knife for the right job. There are very few “All-purpose knives”
- Make sure knives are always sharp. Get a honing stone and learn to use it properly.
- Gloves can help reduce cuts. For everyday continual use, lightweight gloves made from Kevlar® type material allow for greater dexterity



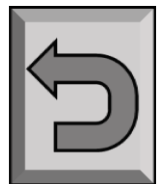
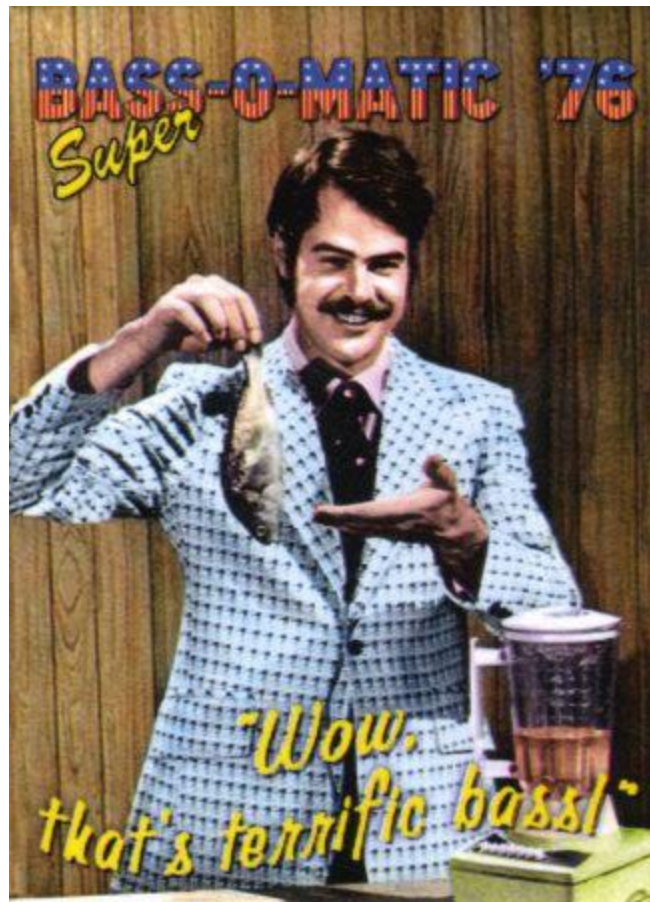
## Knife Haiku

Dull knives can hurt you  
Hone your skills and your knife edge  
Watch out, and stay sharp!



# Blenders

- This will be covered by Juliet Eckert's talk. Up Next, so stick around!

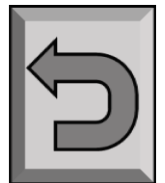


# Band Saw

- Very Dangerous!
- Requires:
  - Shut-off with 1° and 2° “lock-out”
  - Higher voltage electrical
  - Dedicated footprint
  - PPE
  - Water, hose, drain
  - TRAINING!



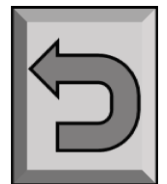
Cutting up larger items into smaller chunks allows for safer, faster thawing





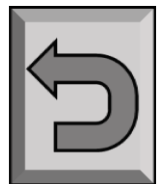
# Scales

- What to look for in scales
  - Capacity
  - Size
  - Sensitivity
  - Durability
- Find a local scale dealer that also does regular service visits, and find out which scales they can repair in-house and which they have to send back to the manufacturer
- Wash-down scales work well in kitchen environments and in both hot and cold environments
- Infrared Tare Function is a nice addition to reduce cross contamination with dirty hands while working in the kitchen



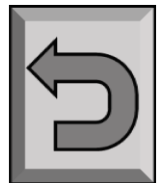
# Stoves, Ovens, Microwaves

- Stoves and Microwaves can produce the same result for many tasks. Although the microwave is faster, it usually has less capacity than a regular stove
- What stoves lack in speed compared to microwaves, they make up for with their ability to boil eggs, bake breads, and heat meats more thoroughly during cooking than a microwave



# Vertical Cutter/Mixer

- This is a multipurpose tool
  - The ability to add attachments such as a side food processor
  - Can be used from anything from mixing meat to processing formulas
- Requires a dedicated footprint and electrical hook-up
- Can be hosed down for cleaning
- Expensive piece of equipment, but it can do the job of 2 people working many hours when it comes to cutting produce.



# Feed Mill Grinder (Size Reduction)

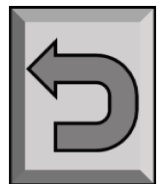
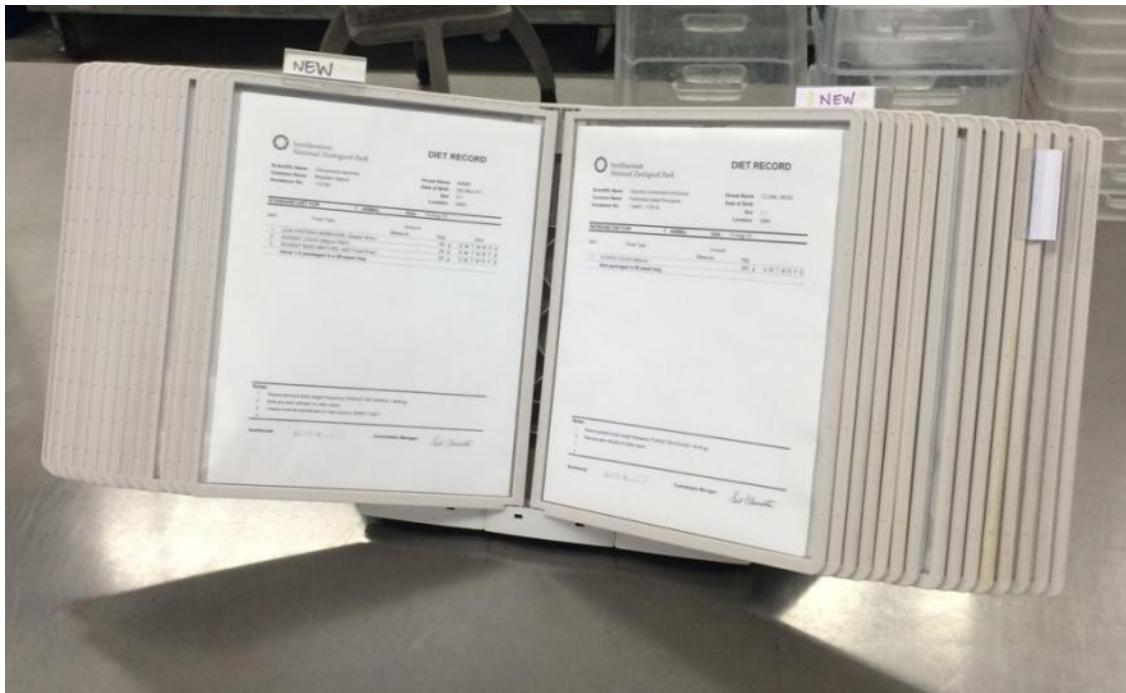
- Used for pulverizing/powdering large amounts of grain.
- This expands the feeds available for specialist feeders.
  - Powdered diets can be mixed with other feed items such as meat or fruit to increase the nutritional quality of the feed
- When purchasing be mindful of:
  - Material to be processed
  - Desired particle size
  - Throughput
  - These will determine RPMs and Power requirement.





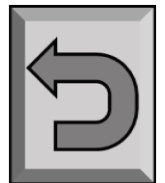
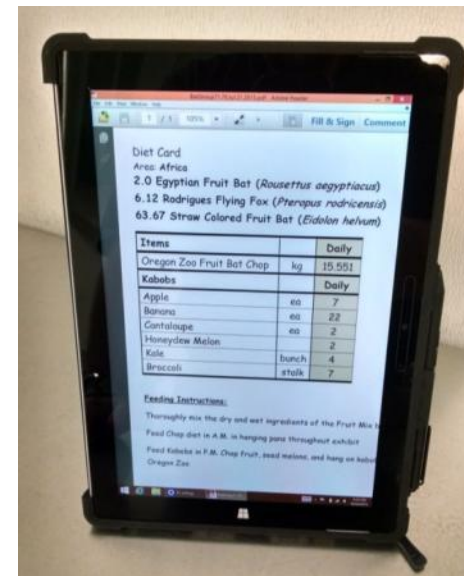
# Flipbooks (Desktop Reference System)

- Recipe books for your collection.
- Designed to hold many pages
- Allows for easy access and editing of diet cards
- Can be cleaned readily after use



# Tablets

- New addition to the Commissary Arsenal
  - Can be used from everything from inventory to diet prep books
  - Can be an extra computer for staff when necessary
- What to look for:
  - Durability (find a good water resistant case)
  - Operating system compatibility with current system
- Adobe Acrobat Pro allows you to make a “Binder” with several files that can be switched out as necessary, which provides a new way to make a digital flipbook for prep in the kitchen



# Labels

- Need to:
  - Handle hot & cold
  - Stay readable when wet (Thermal Printing?)
  - Stay attached, but be removed easily (dissolvable?)

**CAMBRO** **StoreSafe**

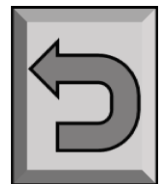
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Date: 11/20/2013 Emp: MAB

Use By: 11/27/2013

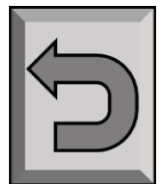
M T **W** TH F SA SU

Made in U.S.A. **DISSOLVE-A-WAY®**



# Cutting Boards

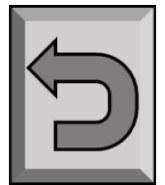
- Need to be Washable & Bleachable
  - Plastic is best for commercial use
  - Avoid wood & glass based boards
  - Sanitize regularly
- Color coded help prevent Cross-Contamination
  - Ensure Staff is familiar with Color Codes





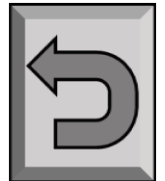
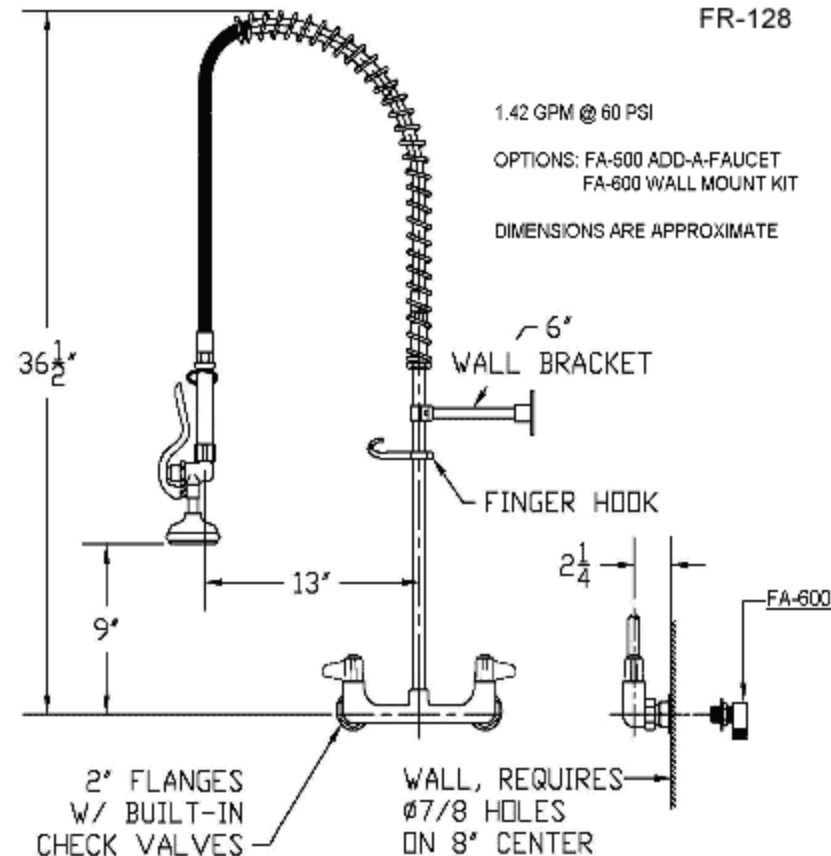
# Dishwashers

- Size will depend on the operation and the room available
- Can save labor in keeper time when the commissary is centralized.
- Humidity control is vital
- Using heat sanitizing over chemical may require a booster attachment



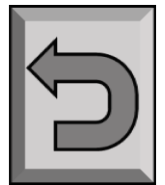
# Hoses

- Water wands – Help with the pre-rinse and reduce the number of times that wash water needs to be replaced
- Reel Hoses help with cleaning meat saws or washing down walls and floors.
  - Requires proper drainage and humidity control.
  - Do not use in rooms with wood
  - Needs to be connected to a hot water line to be effective.



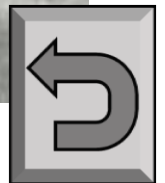
# Sinks

- Pre-rinse → Wash → Rinse → Sanitize → Air Dry
- Make sure the sink dimensions can fit your largest dish
- Instead of 4 comp sink, a 3 comp + 1 comp is a much more affordable option



# Hand Trucks

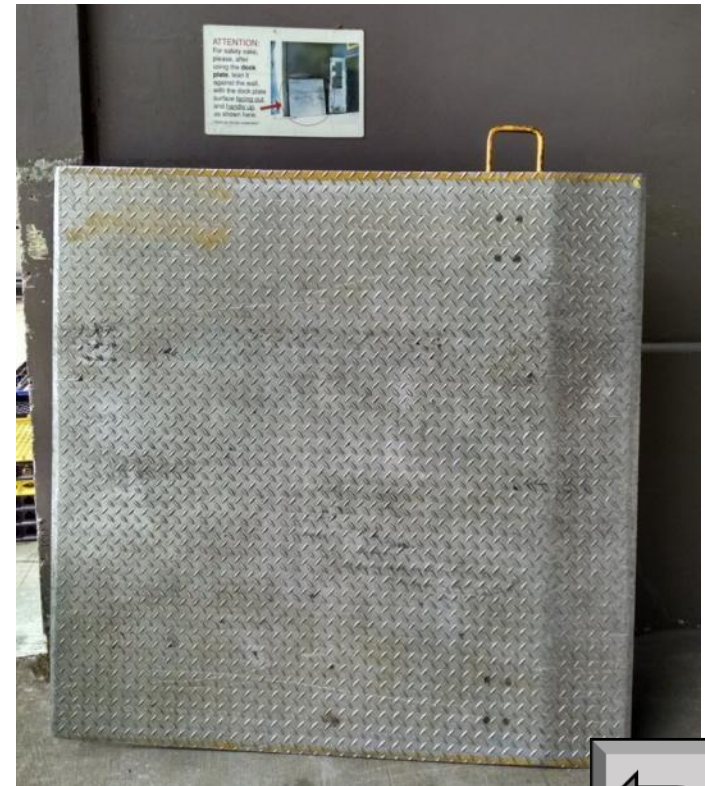
- Grain Dollies with forks can carry up to 10 stacked bags of feed.
- These allow us to move large hay bales (100+ lbs) with a single person without assistance over long distances
- One of the most highly guarded items in our inventory.



# Dock Leveler & Above Grade Access

- Truck level dock access is essential for ease and safety of large deliveries.
- Dock levels are expensive and hard to get installed, but if designing a new facility, they can save time and hassle.
- Dock plates can be used in place of levelers. They are more cost effective, but can be cumbersome to deal with, and heavy by design.

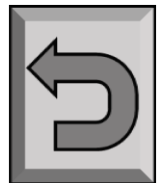
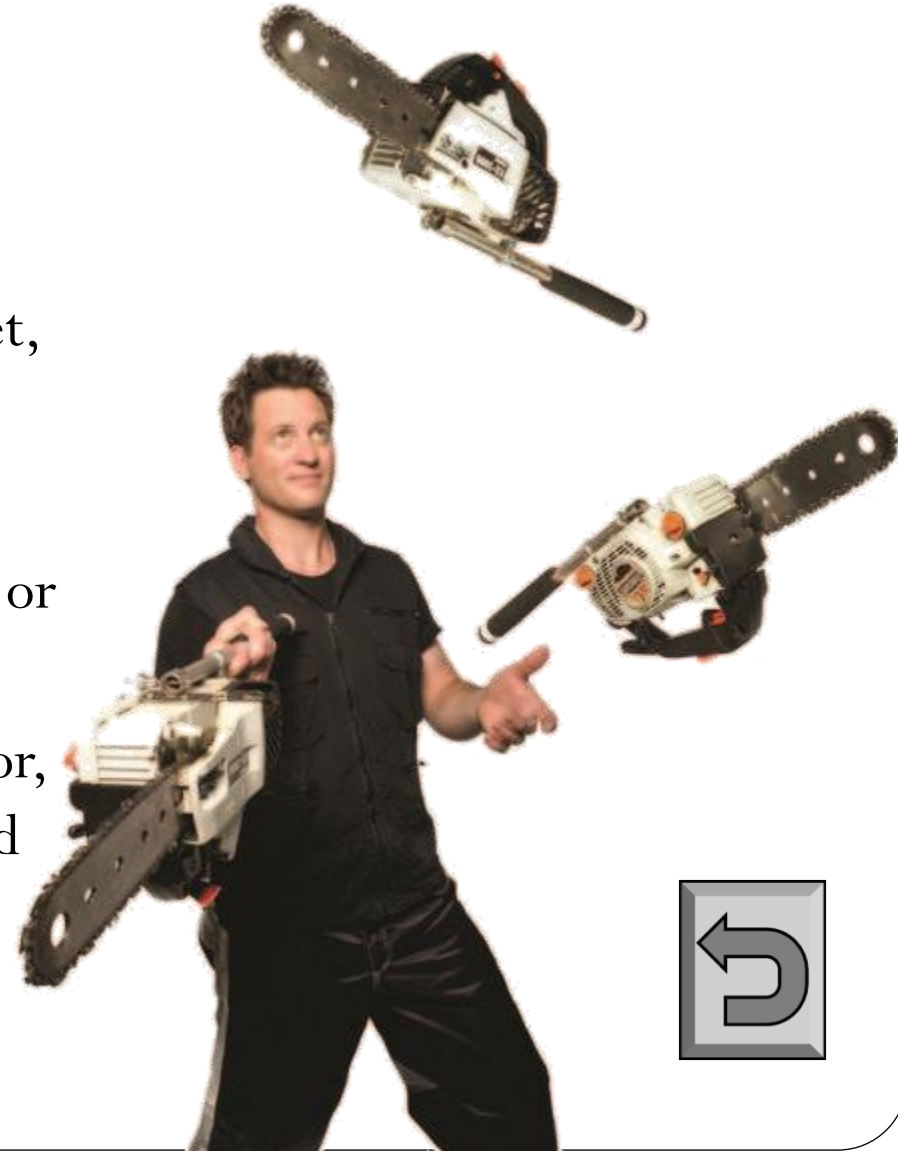
**The Diamond-backed Beast!**





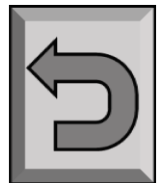
# Chain saws, loppers, & handsaws

- Possibly the most dangerous equipment to have in your inventory.
- PPE – Face shield, chaps, helmet, gloves, boots, etc.
- Extensive training required
- Minimize risk with fixed blades or electric versions
- In the hands of a trained operator, these items can reduce labor and time needed to process browse



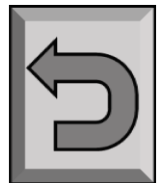
# Pallet Jacks

- Manual Pallet Jacks
  - Useful for loading items in and out of delivery trucks
  - Can be forklifted into a truck easily
- Motorized Pallet Jacks
  - Load weight and building grade need to be considered
- Both require minimal training



# Hay Grappler/Grabber

- Come to the Demo at the Zoo at 3:30PM at the ANC!



# Reach Trucks & Forklifts

- Reach trucks can be helpful when horizontal space is limited in the building, but vertical space is not
- Consider turning radius
- Side-shift options can help in tight spaces
- With forklifts and reach trucks the amount of counterweight is important for the size of the load it is expected to handle. Stability is important when the lift is extended the full height of the mast

