Sourcing Equipment... Challenges & Opportunities

The Decision... New or Used Equipment?

New

- Some things you just can't find used any more.
 - Cheese vats
 - Small batch pasteurizers
- Some new items are much more efficient.
 - □ HTST systems
- Some used equipment doesn't pass current regulatory requirements
 - Requires investigation

The Decision... New or Used Equipment?

Used

- Often is a great option.
 - □ It lowers up front costs.
 - It may be a better value for the money spent.
 - "They just don't build things like they used to."
- Be careful!
 - Demand has exploded and prices have skyrocketed.
 - Many buyers lack experience.
 - Some sellers don't have the integrity that they should have.

The Decision... New or Used Equipment?

Used

- Generally requires more effort.
 - Research on line and/or watching for used equipment ads.
 - Travel to see the equipment and/or poring over photos
 - Decisions on rebuilding
 - What needs rebuilt?
 - Who will do the rebuilding?

So we've chosen to go used...

- What is available?
- What should we look for?
- □ What are the pitfalls?

- What's available?
 - Old farm bulk tanks
 - □ Are less expensive
 - Will a "leaker" work? (one that doesn't hold a freon charge)
 - Some round vertical plant-type tanks
 - Round verticals are in high demand and are more expensive.
 - Some non-functioning pasteurizers can make great storage & mix tanks.
 - Wall tanks
 - Multi-compartment tanks
 - Generally the most expensive, but they are great space-savers.

What should we look for?

- Always inspect for condition
 - Look for the obvious internal damage dents, scratches, chemical burns. (PMO Item 11p.)
 - Exterior stainless or painted? Condition?
 - Outlet valve? Is it stainless steel?
 - Agitator drive gearbox leaking oil? Is it in good running condition?
- Will it hold a freon charge?
 - Insist on pressure testing
- What is the compressor condition?

- What should we look for?
 - Is a tank washer included?
 - Is it in good working condition internal leaks? Does the pump run?
 - Let's add CIP! (PMO Item 12p.)
 - CIP is not all that hard saves elbow grease and time.
 - □ Generally improves sanitation.
 - Sprayballs can be installed on older tanks

- What are the pitfalls?
 - Leaking freon plates
 - Internal damage that will not pass inspection.
 - Missing components... agitator, valve, dipstick
 - An "over purchase"
 - Buying a good batch pasteurizer for a storage tank.
 - Buying an insulated tank when a single shell will do.
 - Buying a cooling tank if all you need is an insulated storage tank.

Selecting equipment - Pumps

What is available?

- All sizes... from 1hp on up.
- Small pumps (1hp-3hp) are in high demand.
 - Often there are not enough small pumps available to meet the demand.
- New ones aren't that expensive Junky pumps are not worth a lot of money.

Selecting equipment - Pumps

What should we look for?

- Inspect for condition
 - □ Motor does it run?
 - General appearance watch for rusted out motors and flakey paint.
 - □ What is the condition of the seals?
- What type of connections?
 - Bevel seat may require welding on new ferrules.
 - □ Triclover

Selecting equipment - Pumps

□ What are the pitfalls?

- Bad motors
 - If you need a new motor plus a pump rebuild, you'll have "Abe Lincoln's ax" when you're done.

Leaking seals

- Seal plates cost big money.
- Make sure it is a popular brand so that you can get parts.
 - Triclover or Ampco
 - Fristam
 - A farm milk pump (DeLaval, Boumatic, Westfalia-Surge).

What is available?

- Small sizes... 50 gal 100 gal are rare finds
 - Medium sizes are fairly available
 - Larger sizes 500 gal 600 gal are less available.
- A wide range of features and conditions.
 - Atmospheric or pressure wall
 - Painted exterior or all stainless
 - Wind-up recorders versus electronic versions

What should we look for?

What is it?

Just the shell? (PMO requirements for vat pasteurizers. Item 16p. etc)

□ Is it atmospheric or pressure wall?

- Overall condition of vat & accessories
 - □ With good agitator? (sweep agitator preferred)
 - Leak detect valve? (in good condition? All stainless?) (PMO Item 16p.)
 - □ Indicating thermometers? (product & air space)
 - Mercury ones are being phased out
 - Recording thermometer? (wind-up or electronic?)

- Atmospheric water must flow through without generating <u>any</u> pressure
 - Spray ring / Water bath
 - Could require a braze plate heat exchanger and/or an extra pump.
 - Older and less efficient
- Pressure wall water can be pushed through under pressure and returned to heat or cooling source
 - Newer & more efficient

□ What are the pitfalls?

- There are a lot of nuances with batch pasteurizers.
 - Research carefully or deal with a reputable dealer.
- Rusted out equipment
 - Bad bottoms
 - □ Leaky water jackets
- Hairline cracks in the stainless inner tank.
 - □ Carefully inspect or dye test.
- Non-PMO components.

What is available?

- There are a lot of old & nearly worthless systems out there for sale.
 - Leaking or low pressure plate packs with old Taylor controls, cracked balance tanks, and bevel seat joints in the holding tube.
- There are very few newer style used systems available.
 - Newer higher pressure plate packs with electronic controls
- There are a few older systems that still have some life in them.
 - Plate packs in good condition that can be upgraded to new style controls – now or later.

- There are a lot of components to a complete HTST system are they all there?
 - Balance tank
 - Pump stuffer and/or booster pumps
 - Plate pack
 - Recorder-controller with all the sensors
 - Holding Tube
 - Flow diversion valve (and leak detect valve)
 - Flow diversion panel (or old-style Taylor controls)
 - Sight glass, vacuum breaker, test ports, pressure differential control, etc.

Key areas to watch out for...

- Plate Pack
 - Brand?
 - Pressure capability?
 - Has it been sitting? Plan to have it inspected and regasketed unless in use and/or recently rebuilt.
 - □ Size? Too large? Too small?
 - Efficiency of regeneration section?
 - Older units are often around 80% or even less
 - Newer units can be 90% or higher

□ Key areas to watch out for...

- Control / Flow Diversion Valve
 - Taylor single stem controls all mechanical / no leak detect valve
 - Still allowed in some states
 - Obsolete and will become a problem to repair soon
 - Alfa-Laval (or other brand) flow diversion panel with separate flow diversion & leak detect valves. Anderson AV9900 recordercontroller
 - The current model

□ What are the pitfalls?

- Old low-pressure plate packs
- Plate packs that gaskets are no longer available for.
- Incomplete systems.
 - Beat up balance tanks. (PMO Item 11p.)
- Old controls.
- Will it meet PMO Appendix H standards?

- What is available?
 - Not many...
 - Cream separators appear to be the first critical component nearing extinction.
 - DeLaval closed bowl separators
 - Old.. Old.. open bowl separators
 - We have not found a source for new cold milk separators in the small sizes.

- What type of separator... Cold milk or Warm milk?
 - Cold milk
 - Mostly DeLaval brand out there they are excellent units even though they are old
 - Milk is pumped through not gravity fed (closed bowl)
 - □ Size can be an issue
 - 240, 242, 340, 342 (approximately 200 gal/hr)
 - 270, 272, 370, 372 (approximately 450 gal/hr)
 - 290, 292, 390, 392 (approximately 640 gal/hr)

Warm milk

- Some real old used models out there some of them still work.
- Most units are gravity fed output will be gravity as well. (open bowl)
- New units are available
- Available in smaller sizes wide range of sizes available.
- □ The cream will need to be cooled!!!

- What should we look for?
 - Does the separator work?
 - Does the separator run with minimal vibration?
 - Rebalancing is expensive.
 - Condition of bowl ring
 - Worn out threads make the unit a ticking time bomb and cost tens of thousands to fix.

What should we look for?

- Do a visual inspection. Has the separator been well cared for or is it all beat up?
 - The separator gets torn apart and put together every processing day. Some of them could tell a lot of stories if they could talk.
- Is it painted frame or stainless frame?
 - □ If painted, make sure disc stack will pass inspection. (PMO Item 11p.)
 - Watch out for soldering in milk contact areas.

- What are the pitfalls?
 - Old machines with soldering and non approved product surfaces.
 - Bad rings & out-of-balance bowls.
 - Incomplete cream valves.

Selecting equipment – Homogenizers

What is available?

- Brand makes a difference here.
 - Gaulin is by far the most popular
 - Cherry Burrell, Creamery Package / Crepaco, etc. are out there (make sure you know what you are getting)
 - Most of the "off brands" are not a good buy.
- These machines are often very old but can still work fine.
 - Don't be afraid of a 1950's machine.

Selecting equipment – Homogenizers

What should we look for?

- Get the model and serial number. Age influences price.
- Most machines are painted frame stainless shielded machines are newer and much more costly.
- Check the condition of the head.
 - Valve seats
 - Pistons
 - Homogenizing valves

Selecting equipment – Homogenizers

What should we look for?

These machines are similar to an engine – crankshaft, connecting rods, pistons, and valves

Does it need an overhaul?

Are the connecting rods loose on the crankshaft?

- Make sure the machine is properly sized. Pulley sizes can change the speed – within a range. Find out the range of the machine you are looking at.
- Plan to buy used they are still fairly available and new ones are EXPENSIVE.

What is available?

- A nice amount of Federal fillers.
 - "A" machines will bottle up to half gallon sizes.
 - □ "G" machines will bottle up to gallon sizes.
- Some Cherry Burrell machines and a few other brands.
- Some old... old... two valve fillers that are nonstainless.

What should we look for?

- Decide how large a filler is needed. Will it take as long to set up as it will to fill?
- Watch out for cap design!!!!
 - Caps feeders and caps chutes are typically designed for a specific cap.
 - Capping with more than one cap style generally is a problem.
- Grade A milk must be mechanically capped. (PMO Item 19p.)

Watch out for the little non-stainless fillers.

What should we look for?

- Check the type of fill valves.
 - Plastic bottles will collapse if filled with the old fill valves that were meant for glass bottles.
 - The old valves include threads and are nonstainless. (PMO Item 11p.)

□ Is an automatic filler necessary?

- New small fillers are available.
 - Less expensive than used automatic machines
 - Allows a person to handle small batches with less waste and down time.

Automatic machines

- Brand makes a difference here as well
 - □ Federal is by far the most popular
 - Cherry Burrell, Cemac, Fogg, and others out there too.
- Cappers are tricky will it handle your caps?
 - New cappers and chutes are expensive.
- Check the condition of the filler drive.
 - □ Are the gears in good condition?
 - Do the various adjustments work?

Automatic machines

- How many sets of star wheels will be needed?
 - Each size bottle requires a different set except for half gallons & squat quarts.
 - Tall bottles with a small footprint generally require double-stacked star wheels.
 - Condition of star wheels & type of material.
- Fillers are sold different ways what is included?
 - □ Just a filler?
 - □ A filler with a caps feeder and caps chute?
 - A filler with caps feeder, chute and input & output conveyor?

What are the pitfalls?

- Watch out for converted Federals with a Filler Specialties tag!!! They are orphans.
- □ Cappers are tricky will it handle your caps?
 - New cappers and chutes are expensive.
- □ Is everything included?
 - New accessories can easily double the price of the filler and more.
- Non-stainless fill valves.

What is available?

- Lots of old rusty bottle washers some out in the weeds.
- A few decent washers that can be reused as is.
- New batch bottle washers.

Batch or Continuous Flow?

- Batch washers.
 - Less expensive than used continuous flow machines.
 - Works well in small plants.
 - □ Washes up to 200 bottles per hour.
- Continuous flow washers
 - Only available used (unless you own the bank).
 - Needed for larger plants
 - □ Washes 1000 5000 bottles per hour.

- Purchasing a used continuous flow washer...
 - Looks are deceitful!!!
 - Many of them are in worse condition than they appear.
 - Others are in better condition than they appear.
 - Almost all of them need serious work before being reinstalled.
 - Tanks rusted out
 - Chain badly worn
 - □ Linkage worn and loose

Rebuilt bottle washers

- What is a rebuilt bottle washer?
 - Completely torn down.
 - Sand-blasted
 - □ Badly worn and weak parts replaced
 - Powder-coated
 - New pumps installed
 - Assembled with new plumbing and electrical components.
- Rebuilt washers are ready to run for a lot of years.

What are the pitfalls?

- Buying a "pig in a poke."
- Not adequately assessing what will be needed to get the washer in working condition.
- See PMO Item 12p. Administrative Procedures No. 4 for requirements for soaker-type bottle washers.

- What is available?
 - Batch freezers
 - □ 10 quart, 20 quart, and 40 quart
 - Emory Thompson is the most popular.
 - Continuous freezers
 - □ 50 gallon per hour and up.

Batch or Continuous?

- Batch freezers typical for small dairies.
 - 10, 20, and 40 quart models
 - Self contained or remote compressor
 - Capacities up to 50 gal/hr
- Continuous freezers are used in the larger plants.
 - Most of these are 100 gallon per hour or larger.
 - More waste for small batches
 - Much more expensive.

- What should we look for?
 - Condition of the freezer.
 - Overall condition of barrel.
 - Dasher condition.
 - Door is it all stainless?
 - Mechanical condition.
 - □ Compressor condition.

What are the pitfalls?
Condition of the freezer.
Non-working compressor.
Dairy metal door. (PMO Item 11p.)

Selecting equipment – Other items.

- Butter churns.
 - Rarely available in small sizes.
- Cheese vats and accessories
 - Rarely available.
 - Some people are using old Girton milk tanks as cheese vats.

Don't get burned

- The used equipment market is subject to a lot of abuses – we have heard our share of horror stories.
- You spell assume with two dollar signs (a\$\$ume).
- Look before you leap.
- □ Let common sense prevail.
- Work with someone who understands the small processing equipment market.

Thank-You