Process Improvement

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ASK YOURSELF…

Am I running a **PROFESSIONALLY MANAGED FAMILY FARM BUSINESS…**or a **MOB**?

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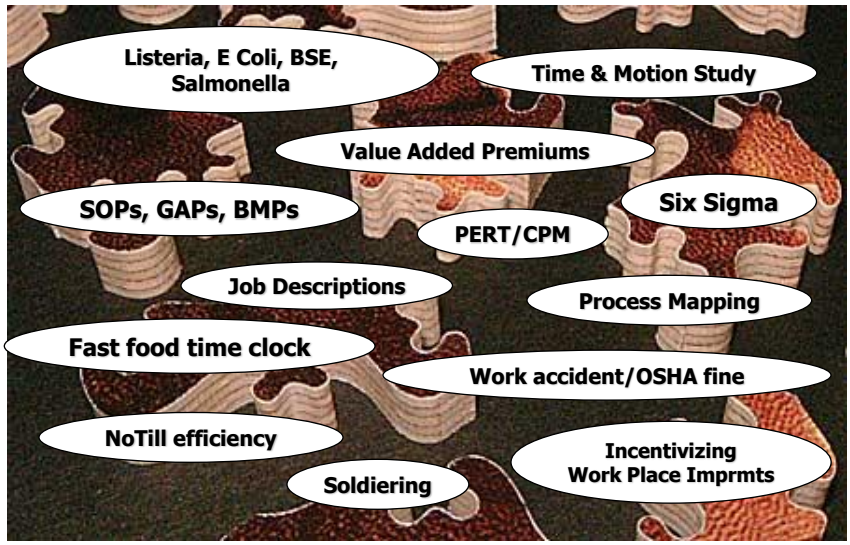

What do these have to do with Process Improvement?

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IQ Test – What do following have to do with Process Improvement?

- Tractor rollover – flat tire (no fluid); spraying on steep ground; no seat belt; roll bar taken off
- Skidder kills operator – 500' slope; no seat belt
- Employee gets caught spraying ineligible chemical near creek
- Combine kills grandpa (SK 2010) – grandson kid hits button in cab; 2nd wife sells farm defying sons' plans to farm
- Fuel spill – employee fueling implement leaves scene; auto-shutoff nozzle fails
- Employee talking on cell phone while winging out self-propelled sprayer – hits power lines & fries tires!
- Employee talking on cell phone; tips logging truck over!

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Answer…When you have:

No clearly defined company culture for:

- Documenting and following SOPs
- Auditing Process Improvement objectives
- Rewarding/incentivizing improvements

→ Bad things happen!

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CLASS EXERCISE

Identify situations where a process in your operation could benefit from a documented standardized operating procedure …

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Case Studies – #1 – Grain Hauling Efficiency

- Problem: 7 semis; under-loading trucks 40 bu./trip
- Analysis
  - Opportunity cost = $.15/bu. x 40 bu/trip = $6.00/trip
  - 6 loads/day x 45 days @ $6.00/trip x 7 trucks = $11,340/yr
  - → 5% cost reduction => 5% reduction in trucking needs
  - → Motivator: Port of Entry fines → $100-500/overload
- Solution/Options:
  - Grain wagon electronic scale - $3,250 + $1,500 install
    → Payback in ½ season of harvest!!!
  - Electronic scales – each truck (ok for commercial hauler)

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#2-Convert 40' Trailer to Grain Trains

- Problem: combines waiting on trucks; drivers hard to find; new trailers cost prohibitive. How improve efficiency & lower cost?
- Analysis
  - Haul capacity: 40' trailer = 850 bu; doubles = 1,150 bu
  - Increased capacity = 300 bu @ $.15/bu x 6 trips/day = $270/day savings x 45 days = $12,150/ year
  - 5 trucks haul what 7 did previously
- Solution/Options:
  - Purchase used trailers $45-50,000
  - Sell old trailer $10,000; (optional: **SELL** two power units)
  - 3 year net payback, excluding sale of excess power units

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How did we solve problem?

- Defined problem
- Engaged stakeholders
- Mapped activity
- Analyzed cost of inefficiency
- Identified alternative solutions
- Implemented optimal solution
- Evaluated results of new process

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Agenda

- What is "process management"
- Motivation and rewards for excellence
- Consequences when you are lax
- Models, Applications and Case Studies for putting concepts into practice

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100 Yr History of Process Improvement

- Scientific Engineering – Frederick Taylor (1911) – summarized 30 years of study in steel industry
- My 1st exposure to term – ***Cheaper by the Dozens***
  - Movie about time and motion studies - Frank Gilbreth
- "A rose by any other name …"
  - Total Quality Management (1980's) → Six Sigma → Business Process Re-engineering → Business Process Re-design… and dozens of other buzzwords invented to sell books and provide jobs for consultants!
- Bottom Line: PI is deciding what to **measure & manage**

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Scientific Engineering – Frederick Taylor (1911) *written after experimenting with concept in steel industry 1880-1910*

Four principles

- "Work science" replaces "rule-of-thumb"
- Manager focus: select, train, develop standards
- Management/worker cooperation insures consistency
- Divide responsibilities: management vs. workforce

Management Objective: mutual prosperity for employee and employer

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Pig Iron Case Study

Principles applied to steel millworkers handling pig iron.
→Assessed motions, capacity of workers
→Developed process, picked 1st class handlers

- Baseline – workers loaded 12 ½ tons of steel /day
- Results–
  - handled 47 T/day – ↑ productivity 400%
  - Worker pay ↑ 60% ($1.15 → $1.85/day)
  - Cost of production dropped 56% ($.072 → $.033/T)

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Frank Gilbreth – father of "Time & Motion Studies"

- Studied motions of bricklayers
  - reduced movements from 18 to 5
  - repositioned materials, support systems for maximum efficiency
- **Results**
  - 350 bricks/hour vs. 120 industry average
  - Bricklayers selected based on performance; given substantial pay increases

  →***Gilbreth's techniques still used today to increase efficiency.***

Trivia ? "Calculate savings (time/$) laying 800,000 bricks at college health science bldg (360 man-days)"

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Savings – Money & Time

- 800,000 bricks @ 120/hr → 6,667 hrs
  - 6,667hrs @$15/hr = $100,000
  - 4 person crew 6-10s→6.5 months
- 800,000 bricks @ 350/hr → 2,286 hrs
  - 2,286 hrs @$20/hr = $45,700
  - 4 person crew 5-8s→71 days/3.3 months
- Savings
  - $54,300 ↓ (54.3% lower cost)
  - 49% less time to complete project

Lessons from Gilbreth/Taylor

- One man alone can't improve
- "Soldiering" is big obstacle
- Benefits of management working with employees:
  - Owners → achieve lower cost production
  - Employees → increased pay; better work conditions (more time off, safer environment)

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Modern Applications of Process Improvement Successes

Health care/pharmacy, fast foods, seeding systems, dairy, timber harvesting, crop production

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Happy Days Corp

Meet my friend Bruce Finch
Fast Food Vendor *par excellence!*

- Lifetime commitment to Process Improvement
- Multiple Taco Time outlets
- Observed time from order window to departure …*not happy!*
- Challenged staff to identify solutions…gave $ incentives
- Time/Motion Project: engaged team to study Cinco de Mayo

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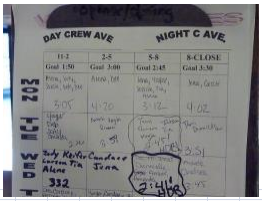

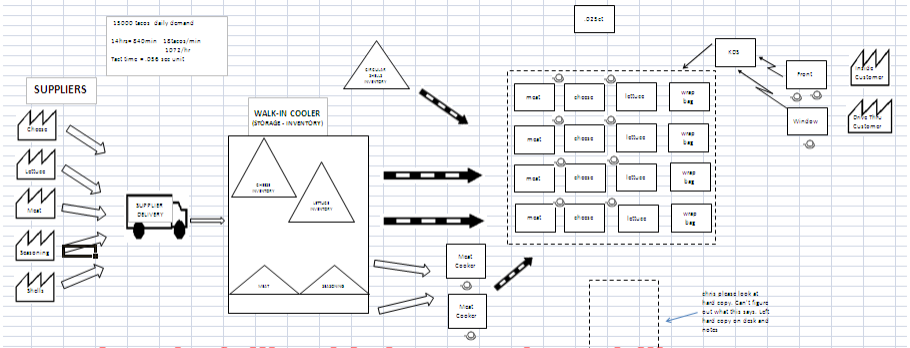

Imagine clock like this in your shop, drill or sprayer!

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Strategy/Results Take homes

- Digital timers track time from order to handing food out window
- Tracked average & best times; employees *continually* worked to BEAT times
- Incentives given for efficiency
- RESULTS
  - Doubled taco output over 2 years
  - Dropped labor cost per taco 13%

CINCO 2009

CINCO THIS YEAR TOOK PLACE ON A TUESDAY.

	LTT	CTT	MTT	TOTAL
NET SALES	[redacted]			
LABOR	16.71%	16.62%	18.36%	
TACO'S SOLD	6896	6098	3406	16400
% OF SALES	46.63%	46.51%	43.00%	
BONUS HOURS	5	5	5	15
RECORD HOURS	[redacted]		0	

CINCO 2011

CINCO THIS YEAR TOOK PLACE ON A Thursday

	LTT	CTT	MTT	TOTAL
NET SALES	[redacted]			
LABOR	15.71%	16.36%	16.03%	
TACO'S SOLD	13854	12000	5300	31154
% OF SALES	58.00%	59.10%	46.70%	
BONUS HOURS	7	9	8	24
RECORD HOURS	[redacted]		0	

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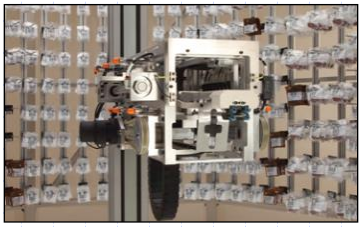
Health Care – Robotic Pharmacy

Applications

- Used 1/3 hospital pharmacies
- Dispenses medications in cassettes, envelopes

Benefits

- Filling accuracy 99.9%
- Checking labor ↓ 90%
- Missing meds ↓ 92%
- Inventory ↓ 10-20%
- Medication costs ↓ 54%



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Milking Robots

Landry Brothers Dairy, St Albert, Quebec
Source: JD Furrow

Three shifts of workers replaced by 10 robots @ $200,000
- lower mastitis
- less management stress
- more attractive to young workers
- 10% increase in milk production
- better insemination results

"…robots don't take holidays or call in sick, never get tired, lose focus or have a bad day…and they NEVER FORGET important things about each cow…like how many times a day a cow needs to be massaged!"

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Why is PI important?

Don't Pin This on Robots

If automation were accelerating rapidly, labor productivity and capital investment would also be surging. Instead, they are growing at the slowest pace in decades.

		Average annual growth in: Labor productivity	Capital investment
1948-73	Postwar economic boom	3.3%	3.9%
1974-95	Great productivity slowdown	1.5	3.8
1996-2002	Technology-led resurgence	3.3	5.1
2003-07	Pre-recession deceleration	2.2	2.9
2008-16*	Great Recession and aftermath	**1.3**	**1.7**

*Through third quarter.

Source: Economic Policy Institute analysis of data compiled by John Fernald of the Federal Reserve Bank of San Francisco

By The New York Times

"...labor productivity and capital investment...growing at slowest pace in decades

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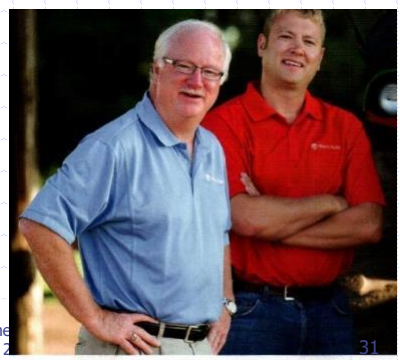
Halversons

2012 Top Producer of the Year Award

- 11 state potato operation; major supplier - FritoLay
- Gregg, Eric, John, Leah – two generations TEPAP
- Transitioning to next generation
- Major commitment to GAPs, SOPs, environmental metrics (Triple Bottom Line)
- Use McDonald SOPs as model to improve brand

→ story: JD8400T cost/hour



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Agricultural Gains from Process Improvement

- Conversion to NoTill/Direct Seeding
- Harvest operations–combine and trucks
- Hay harvesting/hauling
- Grain transportation – trucks, unit trains
- Self-propelled sprayers
- Timber harvesting

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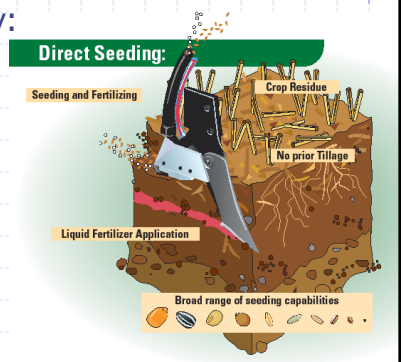
Classic Process Improvement Case Study

Transition from Intensive Tillage to Direct Seeding/NoTill

Benefits: improved economic viability and environmental sustainability:

- Sequesters CO2 →.5T/acre/yr
- Can ↑ OM 0.1%/Yr.
- Improves air & water quality
- Improves wildlife habitat
- Lowers fossil fuel use
  - ↓ 3.5gal/acre per USDA
- Increases economic viability
- Carbon emission offsets 20-25% ↓



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Costs/Acre*- Conventional Seeding - Spring Peas

*From activity based accounting analysis.

Operation	Cost/Acre
Fall Plow	$15.00
Spring Harrow	4.00
Spring Cultivate	6.00
Cultivate/Spray Incorporate	6.00
2nd Incorporation-Cultivator	6.00
Seed-Conventional Drill	15.00
Harrow	4.00
Roller/Packer	4.00
Total Costs Per Acre	$60.00

Recreational farming at its best!!!

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Costs/Acre - Direct Seeded Spring Peas ...saves 3 steps & $25/acre

Operation	Cost/Acre
Fall Heavy Harrow	$4.00
Fall Roundup-Green Bridge	7.00
Custom Hire-Direct Seed Drill	17.00
Harrow	3.00
Roller/Packer	3.00
Total Costs Per Acre	$35.50

Qualitative Benefits: less water loss, less compaction, less erosion risk

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A Tale of Two Tillage Systems

	1998	2000
ATR	.50	1.05
OPMR	.1275	.1633
ROA	6.47%	17.14%
ROE	3.88%	22.61%

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New Frontiers since Agronomy

- Bio-farming
- Cover crops
- Carbon farming
- Reverse Osmosis Water Treatment
- Re-introduction of animal ag to mono-cropping systems
- …add your latest innovation?

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Shephards Grain – Food Alliance

- Value added premiums for wheat grown in Direct Seed cropping system
- Food Alliance certified
  - Certification Costs
  - S. T. Periodic Audits
- $1.00/bu premium→ 1,200 ac wheat @80 bu/ac = $96,000 bonus!

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Process Improvement – Wittman Farms

Baseline - 1980

- 6 partners, 2,500 ac farm, 2,500 pasture, BIG crew
- 4 combines; 6 trucks
- Farming implements covered ground 6-8 times/year

Today

- 3 partners, 20,000 acres
- 100% Direct Seeded
- Efficiency compared to 1980
  - 1 combine replaces 6
  - 1 semi replaces 4-2T tks
  - Sprayer="10x" acres/day

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Definition – *Process Improvement*

Systematic approach to closing of process or system performance gaps through streamlining and cycle time reduction, and identification and elimination of causes of below specifications quality, process variation, and non-value-adding activities.

source: google.com

…doesn't this sound exciting!!!

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Dick's Definition:

Process Improvement is…

- Identifying jobs that are repetitive
- Documenting how jobs are supposed to be performed (SOP, GAP, BMP)
- Evaluating how to **do it *better:***
  - ***More efficient and consistently***
  - ***Safer***
  - ***More economical, and***
  - ***Environmentally sustainable***
- Auditing how you're doing & rewarding gains

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Where can Process Improvement be applied?

… and how do we put principles into practice?

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Where does this topic fit in Management System?

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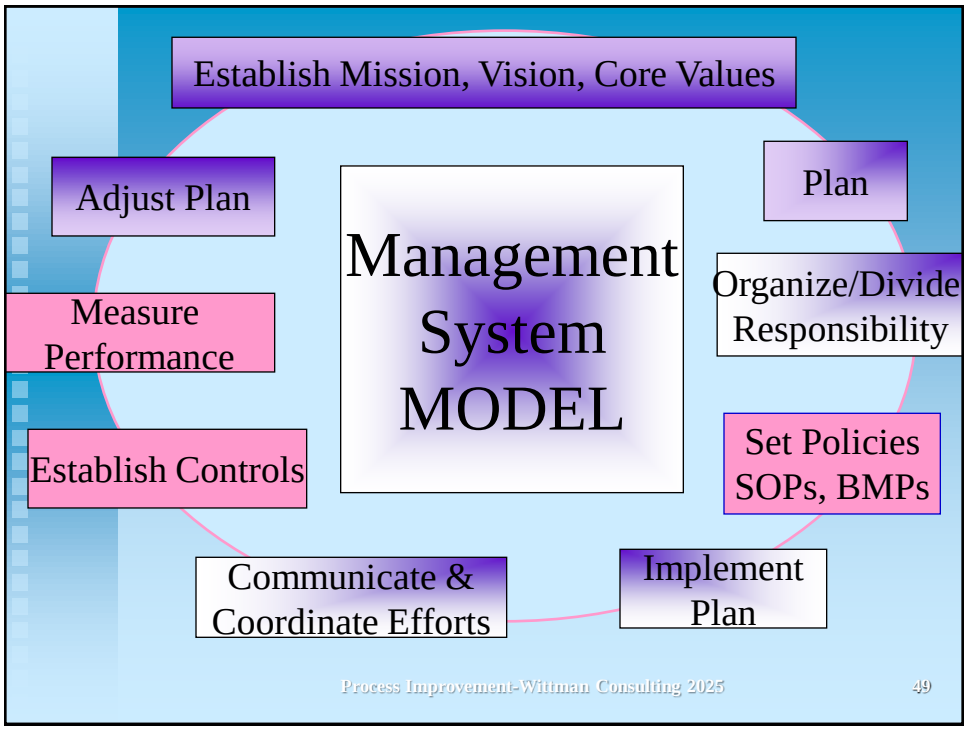

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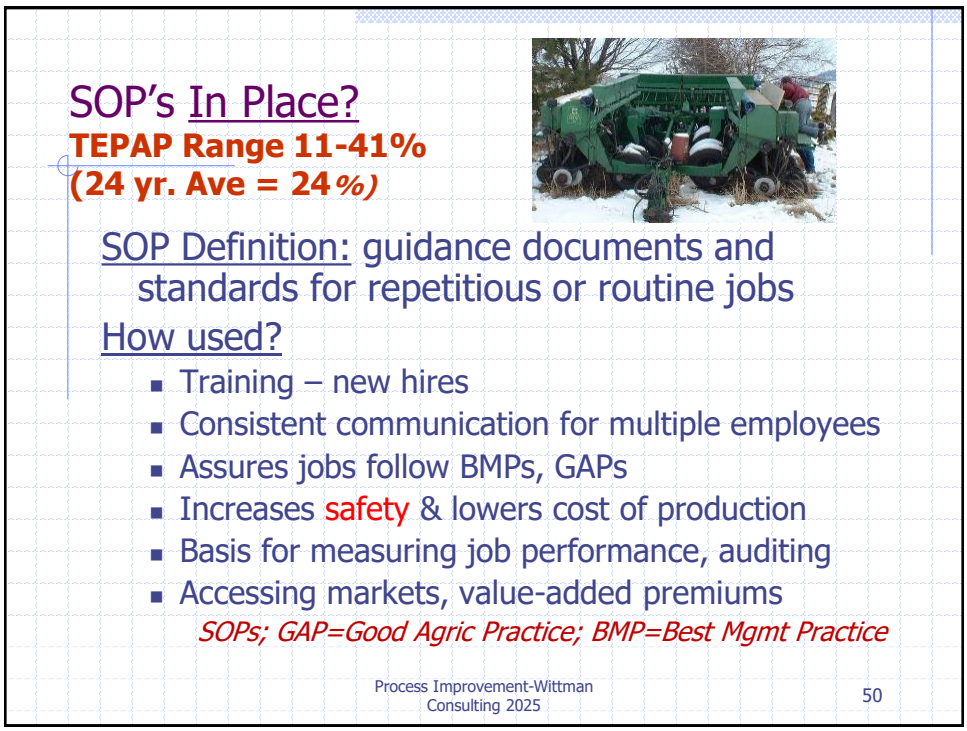

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Consequences of Undocumented SOPs

- Inconsistent work
- Accidents
- Inefficient processes
- Food safety hazards → health risks, fines
- Market demand destruction & loss of market access
- Excessive turnover

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Food Quality "Hits"

Agriculture

THE LEWISTON TRIBUNE

Listeria outbreak devastates California cantaloupe growers

Disease fears have largely killed the demand for crop

BY GOSIA WOZNIACKA
OF THE ASSOCIATED PRESS

MENDOTA, Calif. — On an October day in the midst of harvest season, two farmworkers sat idly in their home in a central California town that touts itself as "the cantaloupe center of the world."

Instead of picking the melons and supervising a work crew, Dora and David Elias of Mendota were unemployed — laid off along with hundreds of others as the cantaloupe listeria outbreak

Associated Press

- Alar Scare-apples
- E coli–leafy greens, ground beef
- Salmonella - peanuts
- Listeria – Colorado & California cantaloupe
- BSE - beef

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Applications of SOPs/GAPs

- Office functions
- Harvest operations & servicing
- Crop agronomic practices
- Timber harvest & manufacturing processes
- Fuel and Supply Storage
- Worker safety guidelines
- Food safety practices
- Herd health & stock handling procedures
- Value added market access

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Office Management Functions

- Database management
- Computer access protocols
- Internal controls/security
- Data Backups
- Network and internet
- Financial function SOPs

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Where would your business be tomorrow if:

- You were hit by bus
- Computer technology expert left country
- Bookkeeper ran off with hired man
- Computer fried itself & the backup system
- NO one else knows your system!
- → ***How I learned the hard way…***

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Building Office SOPs

- Define issues needing documentation
- Document SOP
- File in accessible location
- Use for training/orientation
- Update existing/new items as needed

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Equipment Operations & Servicing

- Maintenance checklists
- Operating instructions – key equipment
- Shop protocols
- Seasonal workflow planning
- Harvest crew orientation
- On farm grain storage protocols

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Equipment Operations/Harvest Examples

- Maintenance & Servicing Functions
- Harvest Orientation—protocols for driving, scales, bin dumping, field habits
- Chassis Checklists
  - Book-MBR\Exhibits Files\7.3 Power Unit Chassis Checklist.doc

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Chassis Checklist

Imagine truck fleet

How avoid the "…dreaded phone call"…

"Are you SURE you checked everything?"

Power Unit Chassis Checklist

Date - _____ Unit# - _____ Mileage - _____ Hours - _____

Ser# - _____ Make - _____ Model - _____ Inspector - _____

OK	Repair	
		Electrical -
☐	☐	Headlight, high & low beam.
☐	☐	Signal lights, front and rear.
☐	☐	Clearance, tail, and marker lights.
☐	☐	Inspect alternator pulley, belts and mounting.
☐	☐	Take a voltage reading at alternator before and after starting.
☐	☐	Inspect condition of battery, cleanliness, terminal ends, etc.
☐	☐	Inspect battery cables to starter, bare spots, rubbing, etc.
☐	☐	Check cab service, horn, heater, instrument and lights, etc.
☐	☐	Inspect and tie up any loose, rubbing or dangling wires.
		Chassis Inspection -
☐	☐	Jack up front axle and place on jack stands.
☐	☐	Check kingpins, grease until lower bearing is purged.
☐	☐	Check condition of front wheel bearings, wheels and nuts.
☐	☐	Check the condition of the steering gear, drag link and tie rod ends.
☐	☐	Inspect front spring eye, pin, U bolts, nuts and rear mounts.
☐	☐	Inspect this area closely for any rust stains tracking away from any two surfaces indicating movement.
☐	☐	Check front motor mount cross member, insulators and bolts.
☐	☐	Check tire pressure and inspect steering axle tires.
☐	☐	Set front end back on the ground, start engine and turn steering right to left while looking for steering gear mounting, steering stops, front axle and spring movement.
☐	☐	Check all cross members for cracks and loose bolts.
☐	☐	Inspect torque arm condition and mounting.
☐	☐	Inspect end beam bushings and check pin and bolt assemblies.
☐	☐	Torque end beam bushing bolts to 225 ft. lbs.
☐	☐	Inspect center bushing, mounting caps and dead axle.
☐	☐	Inspect rear spring packs, sa wood, leafs, and brakes.
☐	☐	On spring suspensions, be sure to purge grease pin.
☐	☐	On bisquit suspension, set on jack stands and check wheel bearings, tire condition, pressure and wheel nuts.
☐	☐	While suspension is OFF the ground, rotate one wheel on front axle by hand, shift power divider to see that rear axle engages.
☐	☐	With brakes released and reservoir pressure not allowed to drop below 100 psi, adjust brakes to achieve clevis pin travel on application of 1" on all 4 drivers.
☐	☐	Check operation and locking of slacks, replace if necessary.
☐	☐	Inspect brake condition, compare lining thickness top to bottom to determine S-cam and bushing condition.
☐	☐	With good light, inspect brake shoe hardware, springs, rollers, shoe to drum contact and drum contact and condition.
☐	☐	Check rear end drain plugs for metal content and condition of gear lube. Top OFF or replace as needed.
☐	☐	On Eaton two speed axles, check all oil levels. Check 1/8" pipe plug at two speed motors, fill with 10 wt. oil.

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Service Truck – Stocking Checklist

"Why are there two empty hydraulic oil jugs in here

…and NO anti-freeze???"

Freightliner Service Truck Left Side	Stocking Checklist Right Side
Fluids - Target Inventory 15w-40 engine oil 2 – 2 ½ Hytran Hydraulic Oil 2 – 2 ½ Tractor Hydraulic Oil 2 – 2 ½ 50/50 Antifreeze 2 – 2 ½	Jumper cables Extension Cord Small grinder Welding helmet Oxy/Acetylene Torch – ck gauges Bolt & Fastener Cabinet – ck inventory Heavy chain
Supplies Blue Towels, Rags Bungee Cords Anti-seize Window cleaner	**Rear Center Compartment** Shovel Heavy bar Blocks Welder/Generator – ck gas level Fuel Tank – ck fuel level Grease gun filler
Tool Compartment End wrenches, screw drivers, hammers Socket sets – 3/8, ½ & Impact Gun	**Top Left – Rear Storage Box** Welding Cables HI-Lift Jack **Left Rear Side Compartment** Air chucks – blow nozzle, tire chuck & gauge

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Semi-Truck Use Guidelines SOP

Source: Barron Farms Inc

1. Daily – inspect complete chassis (brakes, steering linkage, overall truck condition)
2. Drivers may only use cell phones when trucks parked
3. Drivers allowed to have passengers with written approval
4. Inspect field entrances/exits before entry; mark edges clearly
5. Maximum speed limit 7 mph driveways, yards
6. Always park trucks on flat with brakes set; driver stays in truck while loading
7. Drivers expected to obey all traffic & weight limit restrictions
8. Drivers required to have minimum 10 hours rest before next shift
9. All truck loading at bins requires one helper assist while loading
10. At end of day, all trucks to be parked in designated parking areas

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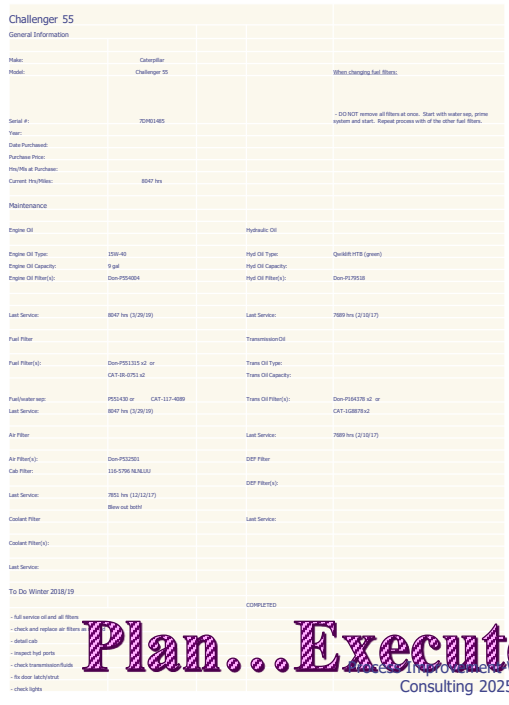

Challenger 55

General Information

Make:	Caterpillar		
Model:	Challenger 55	When changing fuel filters:	
Serial #:	7DM01485	- DO NOT remove all filters at once. Start with water sep, prime system and start. Repeat process with of the other fuel filters.	
Year:			
Date Purchased:			
Purchase Price:			
Hrs/Mls at Purchase:			
Current Hrs/Miles:	8047 hrs		

Maintenance

Engine Oil		Hydraulic Oil	
Engine Oil Type:	15W-40	Hyd Oil Type:	Qwik6ft HTB (green)
Engine Oil Capacity:	9 gal	Hyd Oil Capacity:	
Engine Oil Filter(s):	Don-P554004	Hyd Oil Filter(s):	Don-P179518
Last Service:	8047 hrs (3/29/19)	Last Service:	7689 hrs (2/10/17)
Fuel Filter		Transmission Oil	
Fuel Filter(s):	Don-P551315 x2 or CAT-06-0751 x2	Trans Oil Type:	
		Trans Oil Capacity:	
Fuel/water sep:	P551430 or CAT-117-4089	Trans Oil Filter(s):	Don-P164378 x2 or CAT-1G8878 x2
Last Service:	8047 hrs (3/29/19)		
Air Filter		Last Service:	7689 hrs (2/10/17)
Air Filter(s):	Don-P532501	DEF Filter	
Cab Filter:	116-5706 NLNLUU		
		DEF Filter(s):	
Last Service:	7651 hrs (12/12/17)		
	Blew out both!		
Coolant Filter		Last Service:	
Coolant Filter(s):			
Last Service:			

To Do Winter 2018/19

	COMPLETED
- full service oil and all filters	
- check and replace air filters as	
- detail cab	
- inspect hyd ports	
- check transmission/fluids	
- fix door latch/strut	
- check lights	

Equipment Service Log

- Gen Information
- Lubrication Specs
- Maintenance History
- "To Do" List

Administration

- Updated Annually
- Employee logs changes
- Shop Manager records

Plan...Execute...Record

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Fuel & Supply (chem/fert) Storage

- Handling procedures
- Security
- Spill prevention
- Identification/open container policies
- Fueling protocols

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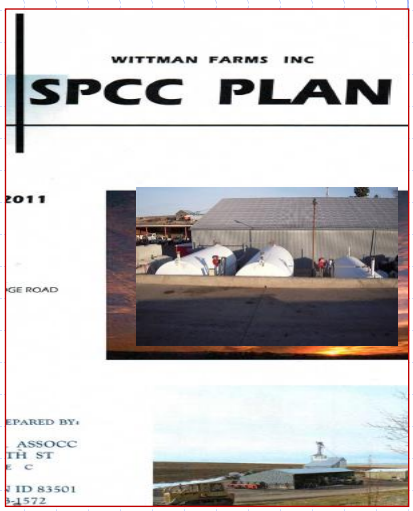
Spill Prevention Containment & Countermeasure Plan

- Facility owner, operators & key contacts
- Facility Description
  - Operations
  - Storage – detailed maps of tanks, location, and storage capacity
  - Drainage Pathway & Distance to navigable water
- Spill History
- Potential spill predictions, volumes, rates and controls
- Prevention measures provided
- Record keeping/meetings, inspections



$15,000 price tag… but required to source fuel!

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Safety Procedures

- Exposures – too many to list
  - PTO, conveyors, hoists
  - Grain bin deaths
  - "Riders"–trucks, combine, tractor
  - → Quadtrac – dad/4 yr-old son
  - Equipment rollovers – dozers, skidders, tractors
  - Transport – cargo strapping
  - Story: Partner's wife allowing kid to play in potato shipping yard
- What is your "safety policy"?

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Think Proactively
…*what's this?* →

Lee Gilbert, ID St Insurance Division

- Safety audits, on-site training, accident investigations
- For every $ in insurance claim, employer spends $4-5
- Provide incentives for thinking proactively (i.e. insurance premium modifications)
- Positive culture of Communication on near misses/close calls

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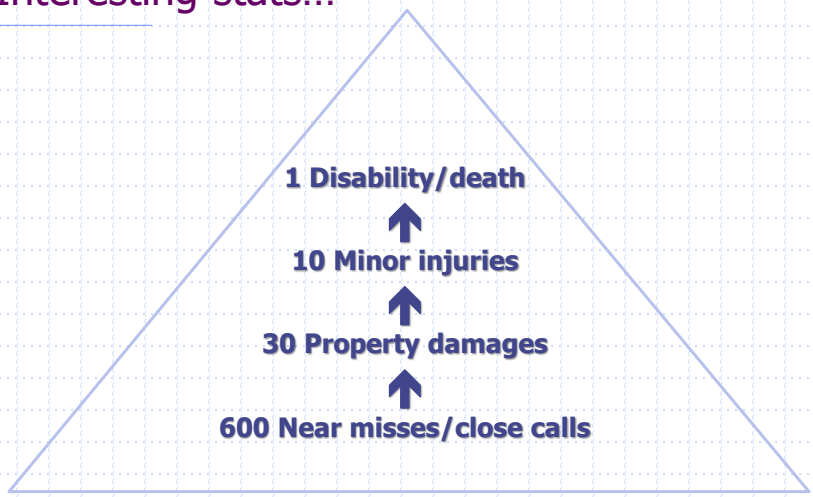
Interesting stats…



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"Predictable Surprises…"

Mike Mulane, NASA Astronaut, Riding Rockets*

- Success = doing things well over & over consistently
- Recipe for success = managing "processes"
  - Be aware of "normalization of deviance"
  - Take responsibility for adherence to standards
  - Be courageous leader in alerting to deviations
  - Beware of "false feedback" – absence of something bad happening … (it didn't cause wreck last time!)
  - Listen to people closest to the scene or front line
  - Archive, review and learn from "near misses" and disasters

**chronicled 1986 Challenger Space Shuttle explosion*

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Grain Bin SOPs

What are YOUR SOPs for:

- Storing grain at proper moisture
- Bin entry & monitoring
  - Harness, extraction equipment
  - Buddy systems
- Employees, family and guests riding in grain transport implements

Grain Bin Entrapment Deaths

- 2010 – 59
- 2011 – 33
- 2012 – 21
- 2013 – 33
- 2014 – 38
- 2015 – 24
- 2016 – 29
- 2017 – 23
- 2021 – 29
- 2022 – 42
- 2023 – 27

Source: Purdue University

SOPs for entry and working in manure storage facilities?

Gas From Manure Pit Kills 5 On Dairy Farm

Emergency crews leave the scene of the Showalter dairy farm in Briery Branch, west of Harrisonburg, Va., Monday, July 2, 2007 / AP

Journal of Emergencies, Trauma, and Shock

Synergizing Basic Science, Clinical Medicine, & G

PMC full text: J Emerg Trauma Shock. 2012 Jul-Sep; 5(3): 253–256.
doi: 10.4103/0974-2700.99702
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Table 1

Case series associated with sewage or livestock waste handling

Case	Age	Sex	Occupation	Type of incident	Cause of death
1	34	Male	Sewage plant manager	Replacing sewage pipe in the basement of a sewage plant	Asphyxiation and drowning
2	27	Male	Hog farm worker	Entered empty liquid manure transport tank	Asphyxiation
3	23	Male	Hog farm worker	Entered empty liquid manure pit in rescue attempt	Asphyxiation
4	52	Male	Hog farm worker	Entered empty liquid manure pit	Asphyxiation
5	23	Male	Hog farm worker	Slipped and fell hitting his head while falling	Asphyxiation and/or drowning
6	44	Male	Sewage plant worker	Opened sewage storage tank door to check sludge level	Asphyxiation
7	25	Male	Sewage plant worker	Checking underground sewer for debris with male co-worker	Asphyxiation and drowning
8	19	Male	Sewage plant worker	Checking underground sewer for debris with male co-worker	Asphyxiation and drowning
9	42	Male	Hog farm worker	Collapsed in hog building after agitating manure pit	Asphyxiation

Hazard Areas –Dairy Dozen

Sept 2014 Successful Farming – OSHA Local Emphasis Program – New York
→ Collaborative effort: Farm Bureau, NE Dairy Producers, NY Center- Ag Medicine & Health, Cornell University

DAIRY DOZEN

1. **Manure storage facilities/ collection structures.** Does your plan include warning signs and worker training?
2. **Dairy bull and cow behavior/worker positioning.** Do you offer animal-handling programs that address physical hazards in barns, pens, holding areas, crowd gates, and parlors? Is Spanish offered?
3. **Electrical systems.** Have you eliminated open circuits, exposed wiring, improper use of extension cords, debris, and storage close to electrical panels?
4. **Skid loaders.** Do you hold regular training and inspection of safety mechanisms?
5. **Tractor operation.** Are all safety mechanisms working properly? What about ROPS?
6. **PTO guards.** Are PTO drivelines and master shields in place?
7. **Power transmission and functional components.** Are shields in place for grain dryer, auger, fan, gears, and other moving parts?
8. **Lockout and hazard-control procedures.** Do you follow these while servicing or maintaining equipment?
9. **Chemical safety.** Do you conduct on-farm hazard communication training for storage and retrieval of chemicals? Do you fit-test respirators?
10. **Confined space safety.** Are appropriate worker safety procedures being followed?
11. **Horizontal bunker silo safety.** What procedures and equipment are needed?
12. **Noise/hearing protection.** Have you made engineering changes to reduce noise levels and to determine appropriate situations for workers to use hearing protection? SF

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What is your cell phone policy?

- Rules on texting, calling
- Technology free zones
- Time and place for use
- Consequences for violations

→ What's driving increases in auto insurance?

Are you asking for predictable surprise?

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Implementation Strategies for Safety Process Improvement (SOPs)

- Identify hazards unique to farm situation
- Document SOPs –
  - Include rewards for "quality improvements" and
  - Punishments for "violations"
- Define protocols for employee training, orientation (meeting dates, agenda, participation logs)
- Appoint safety officer; fix duties in job description
- Conduct safety audits (i.e. State Workmen's Comp)
- Define Zero Tolerance Policy – worksite rules

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Job Site Safety SOPs – *Think like Seattle, WA contractor*

- Pocket size "little red book" with rules
- No access to jobsite until go thru training & sign-off
- Once on site, hard hat with "sticker" required
- Zero tolerance for violations of rules
- Lesson to farmers: is your farm a playground or work site?
- Challenge: how maintain our "culture" AND be safe?

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Resources – Safety SOPs

- iAuditor – build checklists, conduct inspections, file reports
  - http://sfty.io/q4Af/LOcHr6VzQx
- Farm Safety Hazard Checklist
  - http://fyi.uwex.edu/agsafety/employer-resources/farm-hazard-inspection-checklists/
- Great Plains Center for Ag Health
  - 10 health centers focused on farm safety/health
  - www.cdc.gov/niosh/oep/agctrhom.html

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Sample Apps – WA State Department of Labor and Industry

- *Good Observation, Near Miss and Accident Reporting*
  - Documents safety incidents in workplace
  - Uses: training, hazard recognition, risk analysis, process improvement
- *Safe Me (Retail industry focused)*
  - *Tool for on-boarding new employees*
  - *Uses: safety lessons, videos, hazard ID*

https://ohsonline.com/articles/2017/02/27/wisha-touts-new-safety-apps.asp

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Break !!!!!

Enjoy the slide show…

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Deming's Law*

A system always gives you 100% of what the system was designed to do…94% of failures come from systems, not PEOPLE.

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William Edward Deming

- Raised on Iowa farm
- Developed process improvement model adopted by Toyota in 1950s

Plan → Do → Measure → Adjust

"If you can't describe what you are doing as a process, you don't know what you are doing."

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Example – Deming's Law

- Pick number between 1 & 9
- Multiply answer times 9
- Add the 2 digits in your answer & subtract 5
- Pick letter in alphabet that matches order (i.e. 5 = E)
- Identify single word country name whose 1st letter = last answer
- Caution: CANNOT use *google*
- Name a wild exotic animal that starts with last letter of country name?

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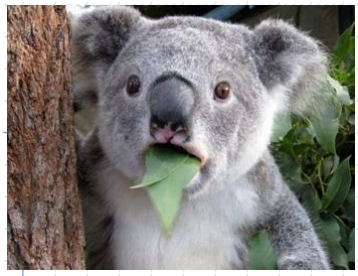

Koala

Kangaroo

Kookaburra

Countries starting with D

- Denmark
- Djibouti
- Dominica
- Dominican Republic
- Dhekelia

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Agronomic Areas of Application

- Nutrient management
- Integrated pest management (IPM)
- Access to conservation revenue incentive programs (CSP, EQIP)
- Input documentation – seed, fertilizer, chemical, field operations
- Precision Farming–VR Application

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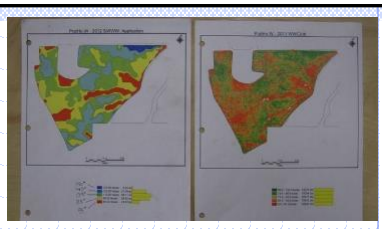
VRA Case Study

- Problem: Excessive reliance on technical support 8 hours away
- Analysis/Problem:
  - Studied process: combine maps → creation of VRA .arm files
  - Timeliness & quality of yield maps unacceptable
  - Poor consistency-soil fertility analysis and yield projections
- Solution → *in-source process with external consulting support*
  - Mapped stages of process; paid consultant to train on process
  - Developed 5-page SOP to do prescriptions in house
  - Saved thousands $ annually…better process!

Mapping & Documenting VRA Process



Pre-harvest yield monitor calibration → in-field validation → download data to field record software → create raw yield maps → clean up yield data → build variability zones →

Review zone maps with agronomy manager for nutrient level recommendations → integrate soil tests with zone variance & assign rates by zone → enter revised rates & create VRA application files (.arm) → download .arm files to drill control computer → ***go home and have a beer!***

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Food Safety, GAPs, BMPs

- Dual drivers pushing growers for implementation
  - Defensive (food safety, water quality)
  - Offensive (market access, premiums)
- Process for putting GAPs in place
- Resources available to minimize cost and avoid "re-inventing" wheel

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Certification/Branding Programs –

Significant factor in market access & value-added premiums

- ISO standards – CODEX International Standards
- PNW Direct Seed Assn – Farm Smart Program
- Oregon Country Beef – natural beef markets
- Carbon Crediting – standards to access carbon offset markets
- USDA Conserv. Security Prgm. (CSP)–conservation practices
- SFI – branding of Forestry Practices to access markets
- IMI Global – Source & Age verification – beef
- Walmart – Sustainability Index
- ***Who certifies value added milk producers?***

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Major Driver – *Food Safety Modernization Act 2010 (FSMA)*

- Key provisions:
  - FDA authority for recall
  - Shift from detention to prevention
  - Standards for production & harvest
  - Focus on traceability
  - Compensation for growers injured by erroneous recall
  - Registered facilities require HACCP plan
- Other Provisions
  - Potatoes now covered ("th
  - Exempt: Small operations <$500,000 & grains
- Recommendation: Study act and learn how provisions apply

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Terms we need to better understand

- HACCP – Hazard Analysis Critical Control Points
  http://en.wikipedia.org/wiki/HACCP
- ISO – CODEX World Health (see list of ISO categories)

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International Standards

- ISO 14001 – Environmental impacts
- ISO 9001 – Product Quality
- ISO 22001 – Food Safety
- ISO 65 – Humane Animal treatment
- OHS 18001 – Occupation Health & Safety

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Questions to Address

- What processes require documentation?
  - Depends on your commodity
  - Check law and regulation applicable to you
- How map SOPs?
  - Learn from peers who've DONE IT already
- Where can I get help…and NOT reinvent the wheel? *(Hint: go to Google.com)*

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GAP Elements –

Potato farm selling fresh potatoes to wholesale processor

Plan 12 pages long

- Traceability procedures
- Worker health/hygiene training
- Clothing & jewelry policy
- Hand-washing techniques
- Policy on taking breaks
- Manure
- Composting Practices
- Harvesting tools, containers
- Vehicles in production fields
- Plant & Storage warehouse
- Loading delivery trucks
- Washing line
- Storage bins
- Rodent & Pest Control

Farm SOP: "All visitors must sign in & wash hands…all SOPs must be recorded & available to inspectors & buyers."

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Environmental Audits

- Mandated by many value added programs to get certified
- Great way to "…clean us messes"→ "people do what is inspected…not expected!"
- Cost $2,500-5,000

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Nationally Recognized Organizations in Fruit and Vegetable Industry promoting GAPs

- Western Growers – CA based; fresh fruit, nuts and veggies
  - http://www.wga.com
- United Fresh Produce Association – Southeast focus; Wash DC headquarters
- Produce Safety Alliance – Cornell Univ, FDA, USDA
- Center for Produce Safety – UC Davis
  - www.cps.ucdavis.edu

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Herd Health/Stock Handling

Areas of application

- Stock handling
- Animal identification/traceback
- Herd Health (BQA – Beef Quality Assurance)
- Confined Animal Feeding Operations (CAFO)
- Waste Management

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Herd Health SOPs

- What happens when SOPs don't exist?
  - Inconsistent procedures
  - Duplicative or unnecessary costs
  - Health problems, losses
  - Jeopardize access to premium markets
- Sample – Beef Herd Health SOP.doc

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Wittman Farms
Beef Herd Health Protocol
Revised 11/30/11

Date	Action	Purpose/Detail	Products
	Cows		
January	Ck Identification tags – Pre Calving	All ear tags should match shoulder brands	
April	Pre-Breeding Visual	Ck eyes, teeth, feet, legs, udders	
	Bulls		
Late January	Breeding Soundness Examination	Check eyes, teeth, feet and legs, semen test	
	Leptospirosis	Prevent abortions	StayBred VL5
	Redwater/Blackleg	Prevents spore-forming bacteria	Vision 8+Somnus
	Pinkeye	Prevent eye redness & inflammation	Piliguard
	Vibriosis and/or Trichomoniasis	Prevent infertility & abortions	Vibrin
	IBR, BVD, PI3, BRSV virus vaccines	Prevent shipping fever	CattleMaster Gold
	External parasite control	lice and grub control in fall, fly control in summer	Cydectin (summer) Dectomax (fall)
January - April	**Calving (calves @ birth)**		
	Identify	Ear tag should match mother's	
	Disinfect navel	Prevent naval disease/ill	H20 & Bedadine solution
	Castrate (band) bull calves		Bands
	Vitamin A & D injection		Vedco A&D

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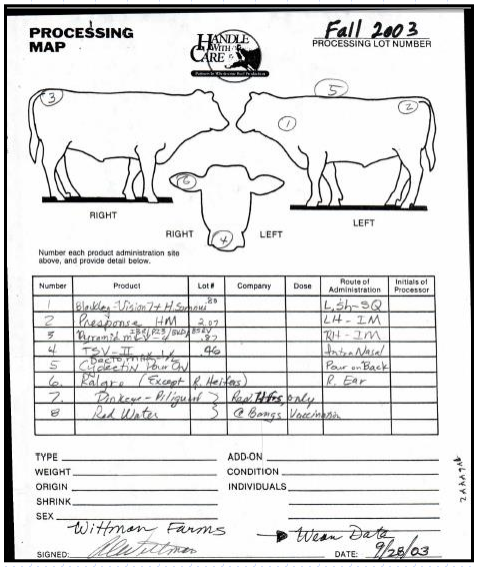
Processing Map
Cattle Treatments

- Keeps crew organized
- Permanent record of treatment
- Verification for feedlot to avoid duplicate input
- Verification to market outlet - consumer



PROCESSING MAP

Fall 2003
PROCESSING LOT NUMBER

RIGHT RIGHT LEFT LEFT

Number each product administration site above, and provide detail below.

Number	Product	Lot #	Company	Dose	Route of Administration	Initials of Processor
1	Blakley Vision 7 + H. somnus	28			L. Shr SQ	
2	Pneaphos + HM	2397			LH - IM	
3	Pyramid MLV-4	87			RH - IM	
4	TSV-2	46			Into Nasal	
5	Dectomax				Pour on Back	
6	Calgard (Except R. Heifers)				R. Ear	
7	Pinkeye - Piliguard	3	Real Tite	Only		
8	Red Water	3	@ Bangs	Vaccinate		

TYPE _____ ADD-ON _____
WEIGHT _____ CONDITION _____
ORIGIN _____ INDIVIDUALS _____
SHRINK _____
SEX _____

Wittman Farms → Wean Date

SIGNED: _____ DATE: 9/28/03

CAFO Elements –

Dairy Spreading Manure in Chesapeake Bay drainage

Plan is 6" thick!

- Farmstead plan-map, water quality plan
- Field plan-solid mgmt, maps, attributes, soil mgmt plans
- Fertility mgmt-nutrients, leaching index, soil tests
- Manure/Waste utilization – annual prodn, analysis, application planning

- Must have "certified planner"
- Plan required before you can apply manure to "CAFO compliant field"
- Annual review mandatory to renew annual permits
- Plans sets minimum standards on barnyard run-off, lagoons, silage leach

"We are mandated to have GAP, SPCC, CAFO in place…CAFO most complicated regulation on farm."

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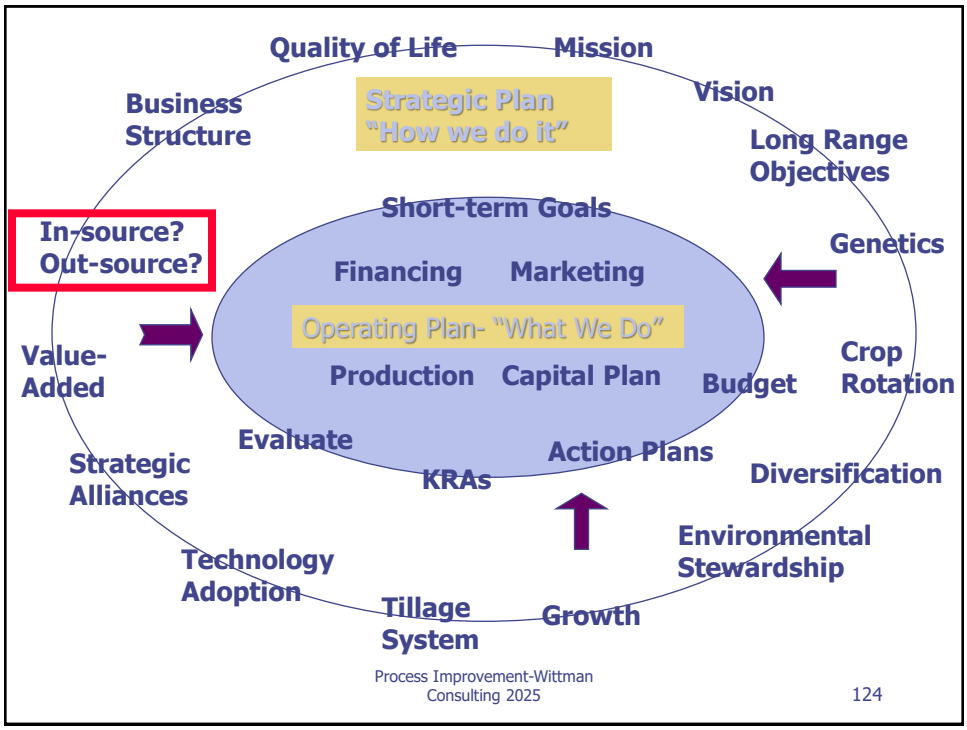

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Emtman Case Study – Insource or Outsource Herdsman Role?

Problem

- Needed cattle to maximize resource use
- No one in "genetic pool" good at cattle
- Unable to retain stable hired herdsman
- Poor conception rates
- Poor weaning %
- Distraction from core strength - farming

Solution

- Outsourced management to cousins
- Compensated based on $/live calf weaned
- Still furnished herd base and paid all inputs

Results

- Significant ↑ weaning %
- Comparable costs to in-sourcing labor
- "farmers" much happier!

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Stock Handling

- **Quiz:** Can you name recent incidents that gave meat industry black eye?
  - →**Answers**: downer cows; chicken cages; ____?
- What is your "animal treatment" culture?
- Do you have an animal care policy & SOPs?
- Are your food safety protocols "up to snuff"?

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Do you have an animal care statement?

At Aurora Ridge Dairy we strive to provide each animal with the very best individual care possible. All of our actions will be based on this goal. Because of this:

- We will handle all animals in a calm and relaxed manner.
- We will do everything possible to prevent injury, illness and undue stress.
- We will give sick animals immediate and thorough care.
- We will provide all injured or down animals with adequate food, water, bedding and veterinary care.
- We will use all animal-handling equipment like the crowd gate and prod in a reserved and respectful manner.
- We will give appropriate assistance to a freshening cow, treating her as a mother giving birth should be treated.
- We will give newborn calves complete care as soon after birth as possible, following protocols established for their care.
- We will practice clean and calm milking procedures established by the dairy management team.
- We will build facilities with animal comfort and care as the first priority.
- We will employ people who are responsible and who enjoy working with animals.

—*Meg Gaige*

Source: May 2006, Dairy Today, Meg Gaige – Aurora Ridge Dairy

"Never use a gun to herd cattle!" *Temple Grandin*

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Beef Quality Assurance Assessment

- 3 tier program–higher tier, more consumer friendly
- Online certification programs – state specific
- Be aware of "wannabe" programs
  - Global Animal Partnership–5-step Animal Welfare
  - Board weighted to animal rights extremists
  - Major markets like Whole Foods rely on them!!

"It's a process of figuring out what could go wrong, planning to avoid it—then validating & documenting what you've done…just part of good business." NE BQA veterinarian, Dee Griffin

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Livestock Resources

- Beef Quality Assurance - http://www.bqa.org/
  - Beef, dairy training manuals and resources
  - Transportation, animal care/handling, use of antibiotic use, etc.
- Dairy –
  - National Dairy BQA Manual
    →*www.**bqa**.org/CMDocs/**bqa**/**DairyBQAManual**.pdf*
  - DairyWorks, Tom Fuhrman
- AgTexas FCS – Allan Watson, COO
  - process improvement programs
  - Client incentive program-1/3 of 1st year savings
- Animal Care - FARM Evaluation guide
  - Temple Grandin – CSU – stock handling systems

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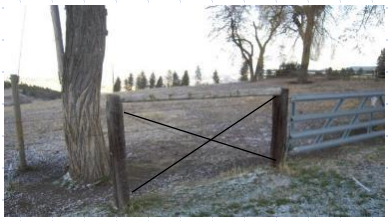
Variance Analysis – Key Component of Process Improvement

- What is your policy re: following SOPs?
- What variances concern:
  - Cattle foreman?
  - Dairy feed manager?
  - Sprayer operator?
  - Timber harvester?
  - French fry plant?



Analyzing Variances & Impacts

Statistical Process Control/Influence Diagrams

- Causes
  - Normal deviations ("noise")
  - Out-of-bounds: procedural or system process weakness
- Impacts
  - Cost over-runs
  - Crop damage
  - Product quality damage

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Variance Case Study - Sprayer

- Situation: Goal is to spray @ specific target/acre
- Problem – chemical being over-applied
- Consequences: cost over-run; crop damage; environmental issues
- Analyzing Potential Causes of Problem
  - Overlap
  - Nozzle wear
  - Flow meter calibration

Quiz: (1) What is biggest factor leading to Precision Ag?
(2) Preventive Maintenance strategies to avoid this problem?

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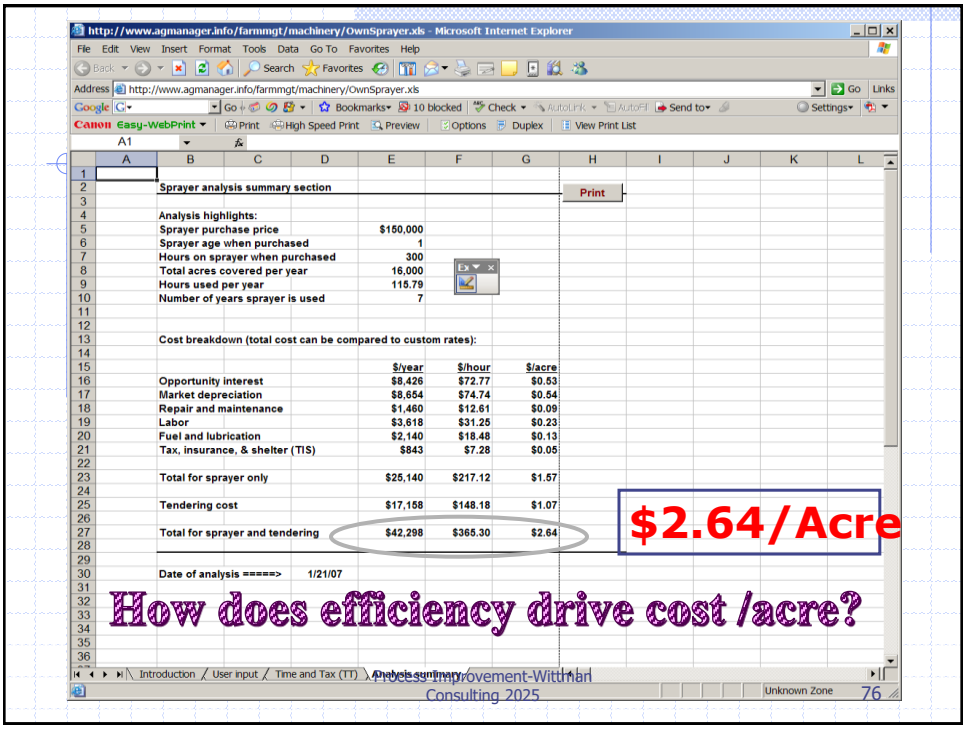

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Sprayer analysis summary section

Print

Analysis highlights:

Sprayer purchase price	$360,000
Sprayer age when purchased	0
Hours on sprayer when purchased	0
Total acres covered per year	20,000
Hours used per year	229
Number of years sprayer is used	10

Cost breakdown (total cost can be compared to custom rates):

	$/year	$/hour	$/acre
Opportunity interest	$8,952	$39.06	$0.45
Market depreciation	$15,619	$68.16	$0.78
Repair and maintenance	$9,059	$39.53	$0.45
Labor	$7,161	$31.25	$0.36
Fuel and lubrication	$5,672	$24.75	$0.28
Tax, insurance, & shelter (TIS)	$1,679	$7.32	$0.08
Total for sprayer only	$48,142	$210.08	$2.41
Tendering cost	$29,729	$129.73	$1.49
Total for sprayer and tendering	$77,872	$339.80	$3.89

47%

Date of analysis =====> 2/19/17

16,000ac → $4.03/ac

25,000ac → $3.83/ac

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U. S. Top Dairies Peer Data

	2014	2015	2022
Income/Cwt	$23.79	$16.98	$25.69
Tot Cost/Cwt	$16.27	$15.17	$19.92
Feed Cost/Cwt	$ 9.22	$7.71	$12.27
Feed as % Tot Cost	56.7%	50.8%	61.6%

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Impact of 5% over-run

- Assume – breakeven situation
  - Total milk cost/cwt = $19.00
  - Feed is 62% of total cost → $11.78/cwt
- Impact of process improvement
  - 5% cut feed costs → .05 x $11.78 = $.59
  - Operating Profit Margin (OPM) increases from 0% to 3.1%

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Variance Analysis – Quality Control *Timber Applications*

- Timber harvest SOPs
  - Limbing, bucking, trim specifications
  - Defect management
- Manufacturing and Processing
  - Milling tolerances
  - Quality Control audits
- Other applications ??

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Telemetrics – New Frontier in Analyzing Efficiency

MAVERICK AG

Hebert Grain Ventures - Combine Utilization Calculations
Maverick Ag Ltd
October 2019

	Combine 1 S690 SPG0785266	Combine 2 S690 SCG0785076	Combine 3 S690 SAG0785064	Combine 4 S690 SKH0795458	Combine 5 S690 SKG0785365	Total	
Annual Cost	$ 64,984.44	$ 75,525.78	$ 75,525.78	$ 96,996.60	$ 59,964.96	$ 372,997.56	
Repair Cost - Estimate	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 50,000.00	
	$ 74,984.44	$ 85,525.78	$ 85,525.78	$ 106,996.60	$ 69,964.96	$ 422,997.56	
Acres - Estimate	4,500	4,500	4,500	4,500	4,500	22,500.00	
Opportunity Cost							
Working Hours - Total Cost	$ 65,016.79	$ 74,670.61	$ 75,602.66	$ 86,060.71	$ 64,354.45	$ 365,705.22	
Idle Hours Empty - Total Cost	$ 13,457.74	$ 14,008.39	$ 11,997.28	$ 19,643.15	$ 10,578.63	$ 69,685.18	*Cost of warming up, cooling down and repairs.*
Idle Hours Full - Total Cost	$ 728.39	$ 753.56	$ 607.14	$ 1,103.40	$ 891.76	$ 4,084.25	*Cost of delays on carts or grain transportation.*
Transport Hours - Total Cost	$ 8,455.31	$ 9,257.72	$ 9,403.25	$ 12,674.29	$ 7,030.45	$ 46,821.02	*Cost of transport due to field location.*
Acres Opportunity Cost							
Working Acres Completed	4,500	4,500	4,500	4,500	4,500	22,500	
Idle Acres Empty - Lost	1,088	977	813	1,151	875	4,904	*Acres lost sitting idle.*
Idle Acres Full - Lost	59	53	41	65	74	291	*Acres lost waiting for grain logistics.*
Transport Acres Lost	627	595	588	702	527	3,038	*Acres lost due to transport times.*
Total Acres Possible	6,273	6,124	5,942	6,417	5,976	30,733	
Harvest Smart Opportunity Cost							
Acres Using Harvest Smart	2,560	3,219	3,028	2,661	3,169	14,638	
Acres Not Using Harvest Smart	1,940	1,281	1,472	1,839	1,331	7,857	
Harvest Smart % Improvement	20%	20%	20%	20%	20%		
Lost Acres from Harvest Smart	388	256	294	368	266	1,572	*Acres lost due to not using JD Harvest Smart*
Total Acres With Harvest Smart	4,888	4,756	4,794	4,868	4,760	24,072	
Lost Opportunity Cost	$ 7,556.40	$ 4,868.61	$ 5,596.02	$ 8,743.02	$ 4,139.19	$ 30,903.24	*Cost of acres lost due to not using JD Harvest Smart*
Opportunity Cost Totals (Not Including Transport Required)							
Total Lost Costs	$ 21,742.53	$ 19,630.55	$ 18,200.44	$ 29,489.57	$ 15,609.58	$ 104,672.68	*Cost of combines not working and not using Harvest Smart*
Total Lost Acres	1,535	1,286	1,149	1,583	1,215	6,767	*Acres lost due to not working and not using Harvest Smart*
Lost Acres from Carts/Harvest Smart	447	309	336	432	340	1,863	*Acres lost from waiting full and not using Harvest Smart*

Tracking efficiency: warming up/idling, transport, grain cart delays, Harvest Smart use

Total Opportunity Costs = $104, 672; Lost acres = 6,767 (30% of Total)

MAVERICK AG

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Labour, Power and Machinery Optimization/Utilization

Machine Utilization

	1N04045RJJ0186663	All Machines
Idle Percentage	28.3%	35.6%
Working Percentage	54.8%	37.5%
Transport Percentage	16.9%	26.9%

Star Performer

MAVERICK AG

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What is your governance culture?

"All organizations are hierarchical. At each level people serve under those above them. An organization is therefore a structured institution. If it is not, it is a MOB. Mobs do not get things done, they destroy things."

Theodore Leavitt – **Management for Business Growth**

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Human Resource SOPs

- Job announcement, application, interview
  20 Interview Questions
- Job descriptions, training & orientation
- Safety Guidelines
- Performance Reviews
- Compensation Policy and Payroll Procedures
- Employee benefits, vacation, sick leave

→ Are these addressed in Employee Handbook or Management System & Governance Manual?

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Are Policies Written Down? 36% do!
...Common "Land Mines"

- Housing
- Company vehicles
- Room and board
- Expense accounts
- Setting compensation
- Withdrawals of capital
- Insider/inter-entity transactions
- Family Employment Policy
- Medical benefits
- Retirement plans/pensions
- Business benefit continuation
- Workdays and holidays
- Vacations, sick leave
- Buyout understandings
- Outside activities

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Social Media Policy & SOPs

- Uusing Twitter, Facebook?
- Policy and SOPs should address:
  - What to include on sites
  - Who's in charge of updating and/or answering inquiries?
  - What posts are "personal views" vs. "business views"

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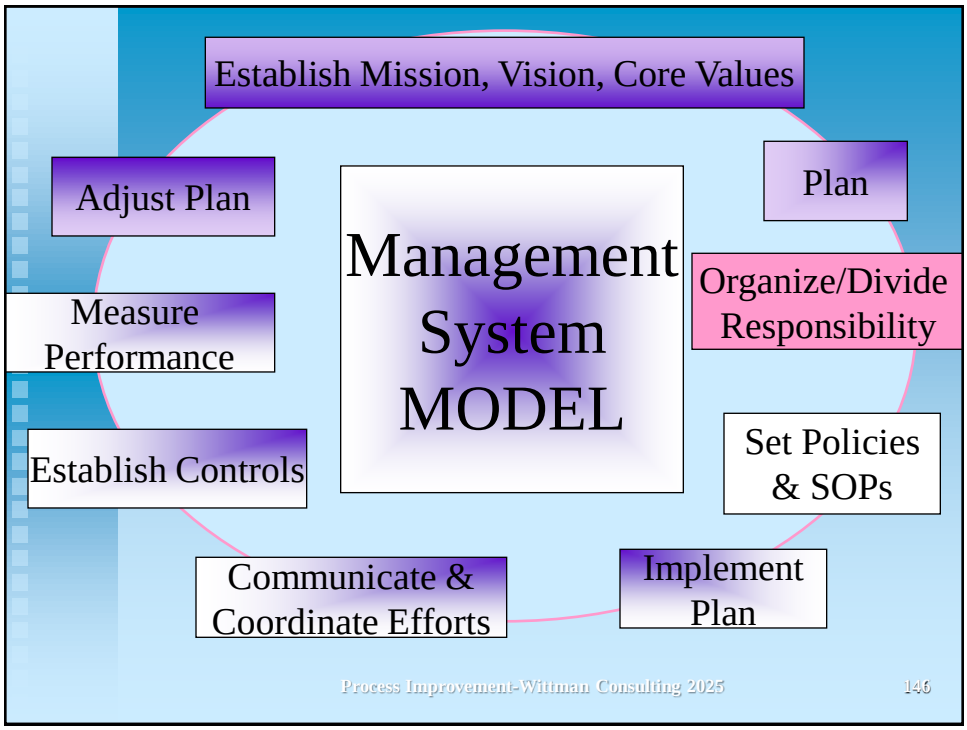
Establish Mission, Vision, Core Values
Plan
Organize/Divide Responsibility
Set Policies & SOPs
Implement Plan
Communicate & Coordinate Efforts
Establish Controls
Measure Performance
Adjust Plan
Management System MODEL
Process Improvement-Wittman Consulting 2025
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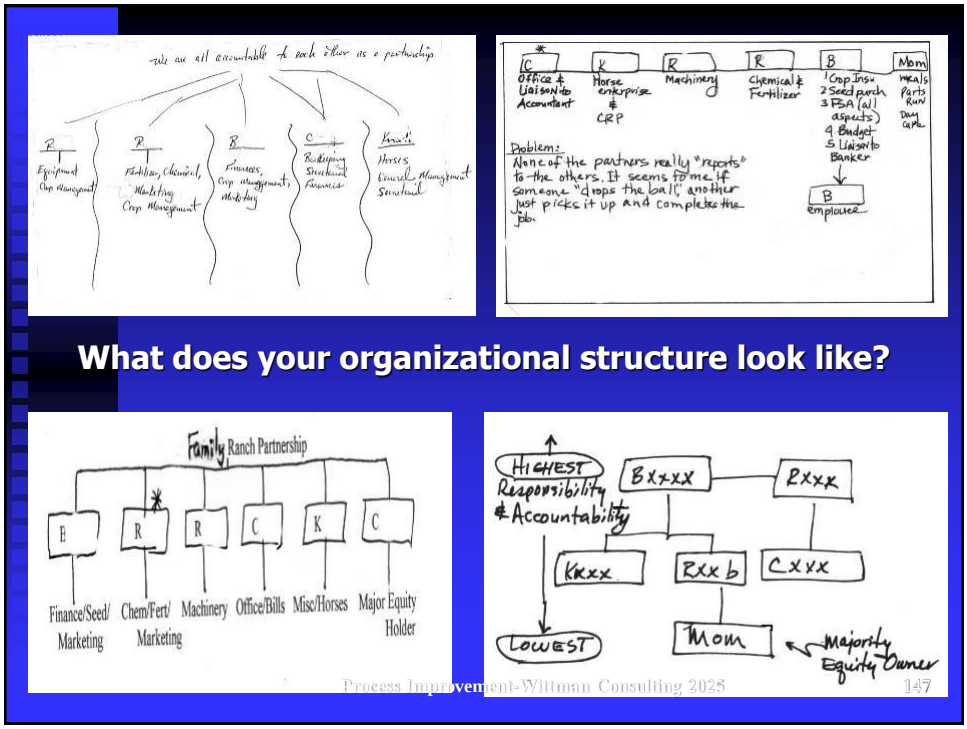
We are all accountable to each other as a partnership
Problem:
None of the partners really "reports" to the others. It seems to me if someone "drops the ball," another just picks it up and completes the job.
What does your organizational structure look like?
Family Ranch Partnership
E
R
R
C
K
C
Finance/Seed/ Marketing
Chem/Fert/ Marketing
Machinery
Office/Bills
Misc/Horses
Major Equity Holder
HIGHEST Responsibility & Accountability
LOWEST
Majority Equity Owner
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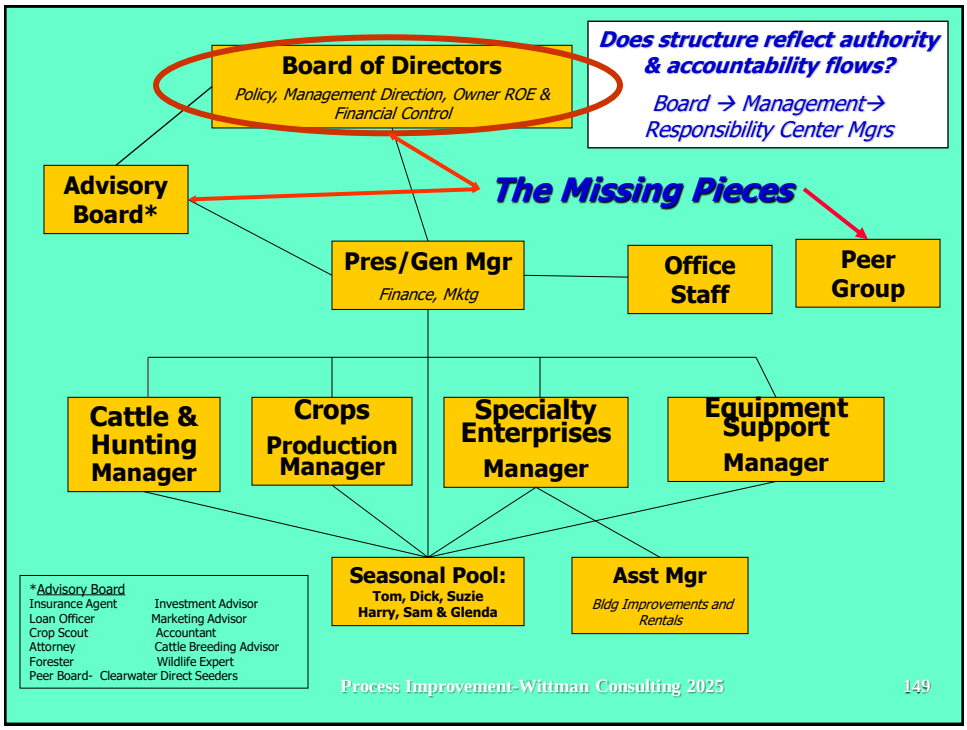

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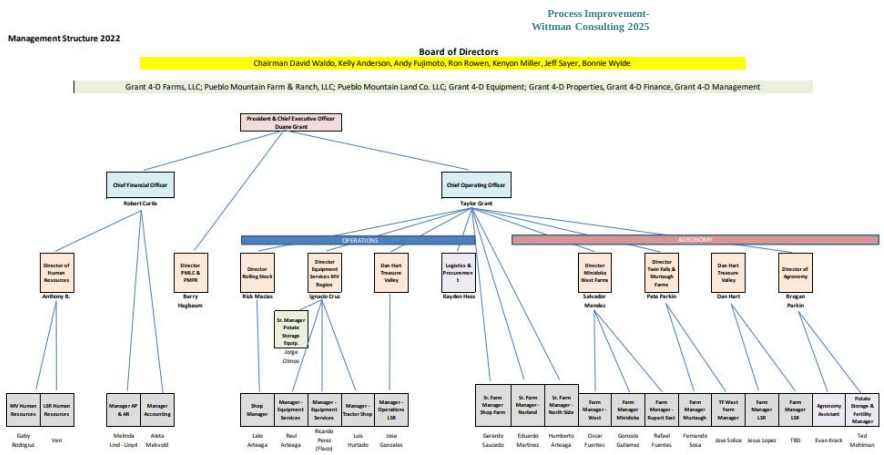

7 legal entities – classic illustration of <u>multi-entity governance challenge</u>
Board of Directors – 100% outsider/non-family, non-owner
Family Council – input for policy and board representation candidates

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Sample Job Description – Precision Ag & Safety Manager

Precision Ag & Agronomy Responsibilities – *7 duty areas*

Administrative/Field Staff Support – *4 duty areas*

Shop Operations & Safety Responsibilities

- Primary backup to Service Manager in planning, coordination and direction of shop operations
- Assist Equipment Support Manager and other shop personnel in maintaining equipment
- Develop and maintain maintenance logs for service scheduling and safety compliance
- Oversee farm safety program: establish SOPs, stock safety supplies, monitor compliance and ensure training and consistent implementation throughout workforce
- Oversee environmental compliance and waste disposition
- Monitor fuel and lube inventories, and coordinate restocking
- Prepare quarterly fuel and road tax return
- Audit and stock shop supply inventory to perform maintenance and repair activities
- Oversee winterization of equipment and headquarters facilities

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Impact of Personality Styles on Attitudes Toward Safety

- DISC Styles
  - D's (Dominance) – run the bus; focus on results; impatient with safety SOPs
  - I's (Influence) – cheerleaders; team focused; like the idea, but not the discipline of implementation
  - S's (Steadiness) - concerned for others; will support safety
  - C's (Conscientiousness) – like structure, accuracy and implement methodically
- Which personality style is best for a Safety Officer?

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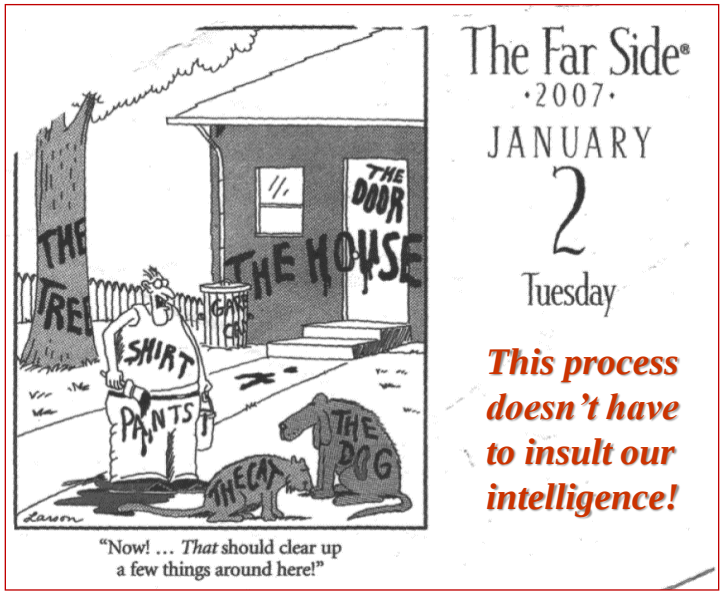

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How avoid "creating concrete"?

- "Negatives" of SOPs
  - Inflexible, tends to create robots
  - Discourages exercise of judgment & common sense
- Balancing micro-managing with efficiency/consistency
- Should we focus on goal or tactics?
- Reward consistency vs. creativity…Encourage **innovative thinking**

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What incentives are you using?

"to avoid creating concrete…"

- Rewards for clean inspections
- Share in premiums gained over market
- Gift/bonus for attending safety meeting
- Bonuses for days without accidents
- Recognize more efficient or safe processes
- Other incentives?
  -
  -
  -

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Remember the "3rd stakeholder"…the Consumer (excerpts from Taylor's Scientific Engineering)

"…is it fair workers get 60% wage hike while employer gets 3.6x efficiency?

"Consumers pay for the profits of both the employee and employer…they must share in the gain with increased quality and lower cost.

"Greatest impact of P.I. has been introduction of machinery to replace people. Consumers have been greatest beneficiaries."

→ *No better place than agriculture to make this point!!*

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Where to Start - Implementation Strategy

- Form in-house team with outside facilitator
- Review legislation, regulatory requirements; attend training conferences – food safety
- Consider engaging auditor/certifier to do "test drive"
- Develop strategy for getting documentation in place
  - Do your own, outsource
  - Align/collaborate with peers to implement in team approach
- Put SOPs where staff can FIND them and LIVE them!

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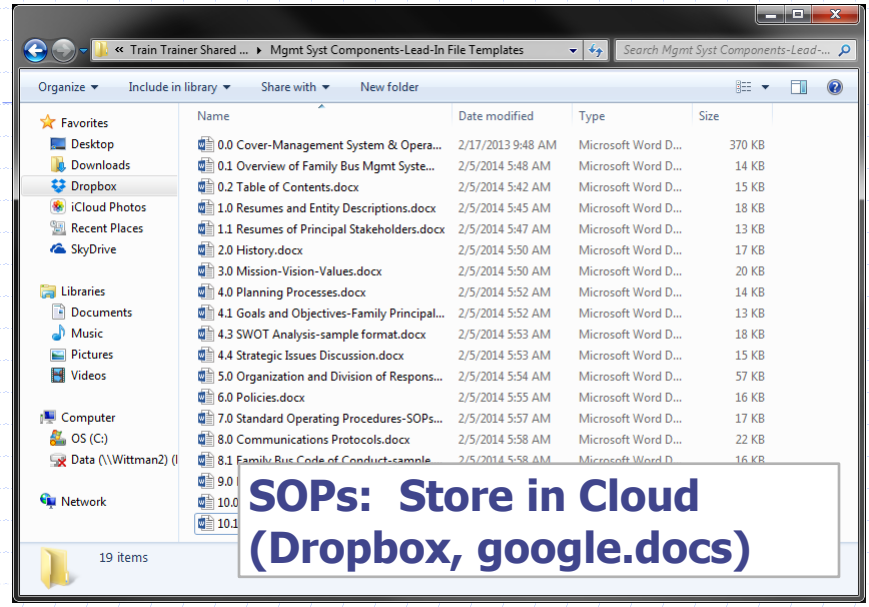

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Process Improvement Audit Checklist

This worksheet is designed to assist you in identifying areas in your business where it may be appropriate to standardize process and document SOPs, GAPs, or BMPs. Inventory which of these apply to your business, place an "X" in columns that apply, and note which organizational unit in your business has lead responsibility to initiate and/or administrate the topical area.

Process Improvement Area: (Place an "X" in the columns that apply.)	Applies to Us	Have it in place	Organization Unit or Person with Lead Responsibility
Management System			
Mission, Vision and Core Values			
Farm History			
Goals and Objectives-updating process			
Strategic Planning Process			
Organization Chart/Job descriptions			
Policy Handbook			
Critical agreements documentation (buyout agreements, estate plans & wills, lease arrangements			
Human Resource Mgmt			
Job Announcement, application & interview processes			
Job Descriptions, org. charts & Performance Standards			
Training and orientation			

Time to wrap up…

Have you taken inventory of your Process Improvement elements?

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Apps for writing SOPs

- Connect Team
- Other class picks?

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Summary – "*Good is the enemy of great!*"

- Ag business → LOTS of MOVING PARTS
- Must excel at **process mapping** and **costing**
- Promote culture of **100% buy-in** for SOP implementation
  - Will you be "proactive" or "reactive"?
  - Assign "lead role" to accountable party – ***Process Improvement Coordinator***
  - Remember – Checking box not the same as living it!
  - Audit for compliance, punish and reward strategically

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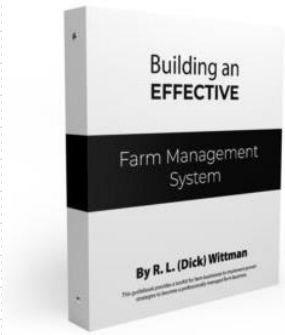
Guidebook Resource

- Updated 2021 – Online + Hard copy
- 50 editable templates for documenting governance and succession processes
- Templates jump start process with working examples of how to apply to your farm



For free resource downloads, articles & Guidebook order forms, see: www.wittmanconsulting.com

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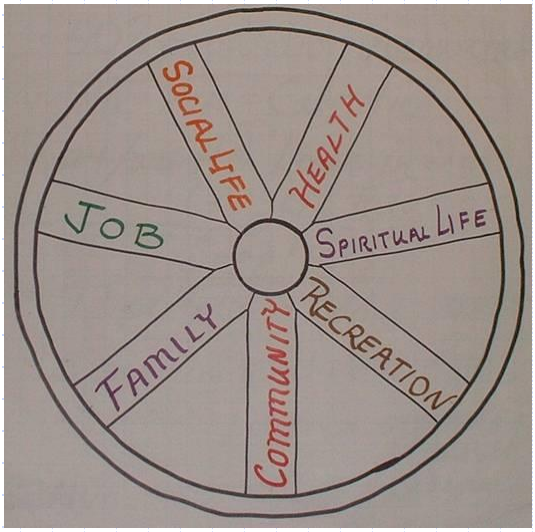
…don't forget to apply Process Improvement to all spokes!



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