A Beginner's Perspective on Cage Free Production

Mark Oldenkamp
Valley Fresh Foods Inc.
April 7, 2015

Context

- This is a “Beginner’s perspective
  - Visited quite a few cage free operations
  - First hands on cage free production in late 2014
- Let’s learn together
- My inclination is to be fully compliant with science based guidelines
- Recognize the Sustainability conversation

Why Cage Free?

- Consumer demand
  - Perception
  - Specialty Category
  - Regional Variation in demand
- Specific production
  - White vs. Brown
  - Organic
  - Nutritionally Enhanced

- Awareness of Advantages and Disadvantages of Cage Free

Advantages and Disadvantages

	Cages	Enriched Colony	Non-Cage
Internal Parasites			
Mites			
Bone Breakage			
Cleanliness			
Foot health			
Cannibalism			
Perching			
Foraging			
Nesting			
Dustbathing			
Air Quality			

What type of system to use?

- What pullet rearing available?
  - Floor House
  - Aviary
    - Cost differences due to density increase – performance
    - Management differences

- What certification requirements does your customer specify?
  - UEP Certified, AHA, Humane Certified, Customer Specific

Aviary Brooding for Aviary Laying

- Chick Starting
  - Ventilation
  - Lighting
  - Whole house heating – Whole house or partial house
  - New Bird health issues
  - Beaks – trim or treat
- Train for jumping and perching
  - Influence of air movement
  - Influence of outside light
- Moving Age 16 -17 weeks – acclimation to lay
- Bird handling for AE-Pox SE injections

Floor Brooding

Aviary Brooding

Determining how many birds

- Space requirements per bird
  - Floor
  - Scratch Area
  - Nest
  - Perch – (elevated)
  - Feeder
  - Drinkers
  - Organic (Outdoor Access)

- Verify manufacturers representations
- Optimize brood/grow to lay capacity

Bird Health Risks

- Site security
- Biosecurity – Mixed ages on same site
- Cocci vaccination
- E coli
- Outdoor Access – Avian Influenza concerns
- Salmonella
  - Last injection last bird move
- Worms –potential

- Keep visitors off the farm
- Utility vendor access
  - Electricity
  - Garbage
  - Gas
- Manure removal

Complete washdown

Brood Grow Management Concerns

- Bird Handling
  - Vaccinations
  - Weighing birds
- Bird piling mortality
  - Partitions or not?
  - Removal of males early in grow
- Perching
- Air quality – ventilation
  - Temp uniformity
  - Dust – litter
  - Ammonia
- Cleanup

Aviary Lay House

- Pullet housing during week 16
  - Delays on incoming equipment
  - Training time for birds – nesting
- House temperature goal –temp uniformity
  - Racetrack fans
- Lighting intensity and sequence
- Feeding sequence – levels/sequence to encourage use of nests
- Manure removal belts – frequency
- Egg collection – automated
  - Floor eggs (count and keep records)

Just after housing

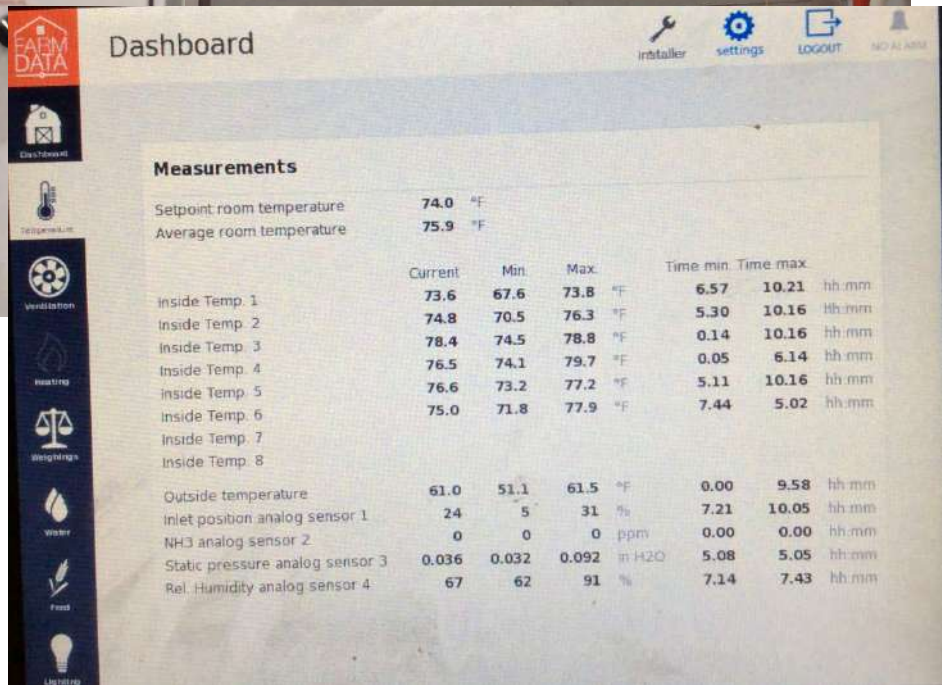
Age 25 Settling in

Control Systems

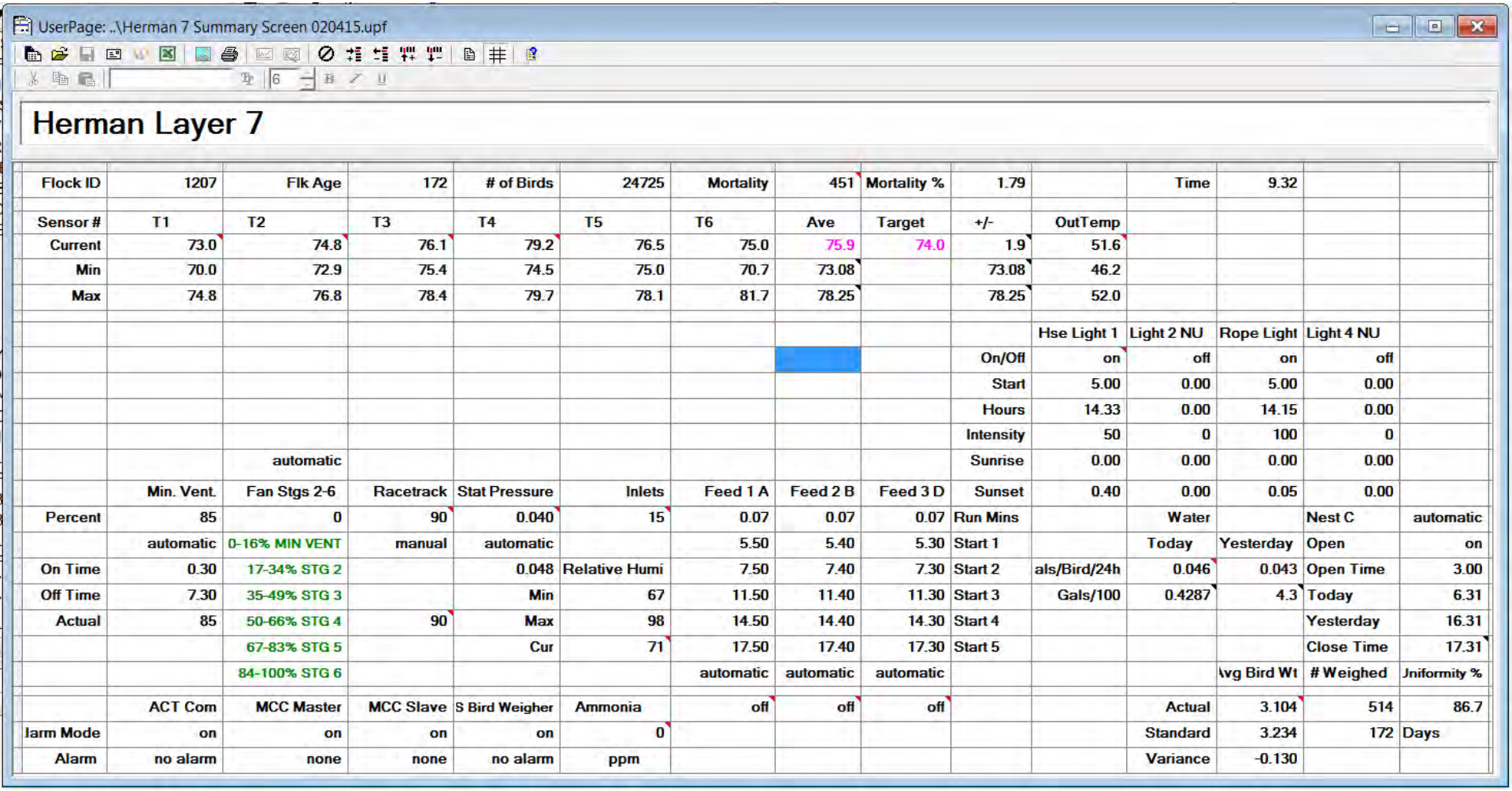
- Pre-structured wiring panels
- Integrated Controls
  - Remote access – Internet Connectivity
  - User friendly or not – to house persons
  - Backup controls

- Backup Power –auto transfer
- Alarms Systems
  - What do the alerts mean


COBURG BROODER 3
VENTILATION CONTROL
FEEDING CONTROL
LIGHTING CONTROL
HEATING CONTROL


Dashboard
installer
settings
LOGOUT
FARM DATA
Measurements
Setpoint room temperature 74.0 °F
Average room temperature 75.9 °F
Current Min. Max. Time min. Time max.
Inside Temp. 1 73.6 67.6 73.8 °F 6.57 10.21 hh:mm
Inside Temp. 2 74.8 70.5 76.3 °F 5.30 10.16 hh:mm
Inside Temp. 3 78.4 74.5 78.8 °F 0.14 10.16 hh:mm
Inside Temp. 4 76.5 74.1 79.7 °F 0.05 6.14 hh:mm
Inside Temp. 5 76.6 73.2 77.2 °F 5.11 10.16 hh:mm
Inside Temp. 6 75.0 71.8 77.9 °F 7.44 5.02 hh:mm
Inside Temp. 7
Inside Temp. 8
Outside temperature 61.0 51.1 61.5 °F 0.00 9.58 hh:mm
Inlet position analog sensor 1 24 5 31 % 7.21 10.05 hh:mm
NH3 analog sensor 2 0 0 0 ppm 0.00 0.00 hh:mm
Static pressure analog sensor 3 0.036 0.032 0.092 in H2O 5.08 5.05 hh:mm
Rel. Humidity analog sensor 4 67 62 91 % 7.14 7.43 hh:mm

Custom House Data (Remote)



Herman Layer 7

Flock ID	1207	Flk Age	172	# of Birds	24725	Mortality	451	Mortality %	1.79		Time	9.32		
Sensor #	T1	T2	T3	T4	T5	T6	Ave	Target	+/-	OutTemp				
Current	73.0	74.8	76.1	79.2	76.5	75.0	75.9	74.0	1.9	51.6				
Min	70.0	72.9	75.4	74.5	75.0	70.7	73.08		73.08	46.2				
Max	74.8	76.8	78.4	79.7	78.1	81.7	78.25		78.25	52.0				
										Hse Light 1	Light 2 NU	Rope Light	Light 4 NU	
									On/Off	on	off	on	off	
									Start	5.00	0.00	5.00	0.00	
									Hours	14.33	0.00	14.15	0.00	
									Intensity	50	0	100	0	
		automatic							Sunrise	0.00	0.00	0.00	0.00	
	Min. Vent.	Fan Stgs 2-6	Racetrack	Stat Pressure	Inlets	Feed 1 A	Feed 2 B	Feed 3 D	Sunset	0.40	0.00	0.05	0.00	
Percent	85	0	90	0.040	15	0.07	0.07	0.07	Run Mins		Water		Nest C	automatic
	automatic	0-16% MIN VENT	manual	automatic		5.50	5.40	5.30	Start 1		Today	Yesterday	Open	on
On Time	0.30	17-34% STG 2		0.048	Relative Humi	7.50	7.40	7.30	Start 2	als/Bird/24h	0.046	0.043	Open Time	3.00
Off Time	7.30	35-49% STG 3		Min	67	11.50	11.40	11.30	Start 3	Gals/100	0.4287	4.3	Today	6.31
Actual	85	50-66% STG 4	90	Max	98	14.50	14.40	14.30	Start 4				Yesterday	16.31
		67-83% STG 5		Cur	71	17.50	17.40	17.30	Start 5				Close Time	17.31
		84-100% STG 6				automatic	automatic	automatic				Avg Bird Wt	# Weighed	Uniformity %
	ACT Com	MCC Master	MCC Slave	S Bird Weigher	Ammonia	off	off	off			Actual	3.104	514	86.7
larm Mode	on	on	on	on	0						Standard	3.234	172	Days
Alarm	no alarm	none	none	no alarm	ppm						Variance	-0.130		

Records and Observations

- Mortality – causes – how much piling
- Feed Intake
- Water Intake
- House Temp vs. Outside Temp
- Egg Production
  - Collection Schedule
  - System/Floor Eggs
- Manure Removal
- Rodents/Flies
- Would like to have remote viewing cameras

Daily and Weekly Flock Records

Flock Code	Responsi...	Ranch Code	Hen House	Flock Type	Flock Acti...	Flock De-...	Financ. A...	Financ. D...	Hatch Date	No. of Hens	Killing Ag...	Current ...	Layer Strain	Current Cages	Molt Period	Monitor ...
F01116	SK	BUTTE	BUTTE1	Lay Flock	06/29/14	11/14/15	06/29/14	11/11/15	03/08/14	108,150	87	CG-EB-WH	LSLLITE	15,096	No upcoming molt.	CG WHT ...
F01117	SK	BUTTE	BUTTE2	Lay Flock	09/28/14	02/19/16	09/28/14	02/19/16	06/07/14	108,150	87	CG-EB-WH	LSLLITE	15,096	No upcoming molt.	CG WHT ...
F01119	SK	BUTTE	BUTTE3	Lay Flock	12/14/14	05/19/16	12/14/14	05/19/16	08/30/14	108,150	88	CG	LSLLITE	15,096	No upcoming molt.	CG WHT ...
F01217	SK	BUTTE	BUTTE4	Lay Flock	03/15/15	07/30/16	03/15/15	07/30/16	11/22/14	0	87	CG	LSLLITE	0	No upcoming molt.	CG WHT ...
F01144	SK	COBURG BR	CBG BR1	Grow Flock	11/23/14	04/12/15	11/23/14	04/12/15	12/06/14	21,233	0	ORG	ISABRN	1	No upcoming molt.	GROW CF
F01208	SK	COBURG BR	CBG BR3	Grow Flock	02/08/15	06/28/15	02/08/15	06/28/15	02/21/15	26,657	0	CG-FR	LSLLITE	0	No upcoming molt.	GROW CF
F01110	SK	CROSBY	CROSBY1	Lay Flock	01/19/14	05/16/15	01/19/14	05/16/15	10/05/13	22,868	83	CG	H & N	6,720	No upcoming molt.	CG WHT ...
F01111	SK	CROSBY	CROSBY2	Lay Flock	01/19/14	05/16/15	01/19/14	05/16/15	10/05/13	24,072	83	CG	H & N	6,720	No upcoming molt.	CG WHT ...
F01112	SK	CROSBY	CROSBY3	Lay Flock	01/19/14	05/16/15	01/19/14	05/16/15	10/05/13	24,072	84	CG	H & N	6,722	No upcoming molt.	CG WHT ...

Week End Date	Age in W...	Number of Hens Week End Date	Mort...	% Mort.	Ro...	Accum. Mort... %	Bird Change	Feed Inve...	Tons Fed/ Week	Lbs/ 100	Lbs/ Doz.	Accum. Pounds per D...	Dozen Eggs per Week	% Prod	Eggs per hens ...	Water Consu... per Week	Ave Gallons / 100	Ave Low Temp	Ave High Temp	Out Low Temp	Out High Temp	Ave Body Weigh...	Ammonia	Hours Light per ...	Case Wt	Large + %	Un... %	Sp. Grav.	Daily Egg Mass	Days Last Sample	Rod...	Rodent Index	Flies	Cur Ave Bds/cg	Birds Wei...	Sq In/ Bird	Comment	We Dat
03/28/15	16	20,625	0	0.000	0	2.863	0	0.00	5.50	7.60	0.00	0.00	0	0.0	0.0	410	2.0	67	75	45	61	0.00	0.00	0.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	0.0	121.5		
03/21/15	15	20,625	2	0.009	0	2.863	0	21.00	10.91	15.10	0.00	0.00	0	0.0	0.0	2,903	2.0	67	75	41	64	2.91	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	121.5		
03/14/15	14	20,627	2	0.009	1	2.854	0	20.00	11.77	16.30	0.00	0.00	0	0.0	0.0	3,027	2.1	67	75	31	59	2.80	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	121.5		
03/07/15	13	20,630	1	0.005	3	2.840	0	16.00	9.90	13.70	0.00	0.00	0	0.0	0.0	3,293	2.3	67	74	25	55	2.57	0.00	0.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.9	121.5		
02/28/15	12	20,634	1	0.005	0	2.821	0	12.00	12.88	17.80	0.00	0.00	0	0.0	0.0	3,705	2.6	67	74	29	56	2.44	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	121.4		
02/21/15	11	20,635	111	0.523	0	2.816	0	11.00	12.00	16.60	0.00	0.00	0	0.0	0.0	3,353	2.3	67	75	32	58	2.21	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	1.0	121.4	LT	
02/14/15	10	20,746	6	0.028	0	2.294	0	23.00	9.21	12.70	0.00	0.00	0	0.0	0.0	3,129	2.2	64	77	43	57	2.02	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	120.8	AE/SE/P...	
02/07/15	9	20,752	5	0.024	1	2.265	0	18.50	2.86	3.90	0.00	0.00	0	0.0	0.0	3,090	2.1	67	75	45	57	1.71	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	120.7	IBNC	
01/31/15	8	20,758	142	0.669	0	2.237	0	9.50	6.56	9.00	0.00	0.00	0	0.0	0.0	3,330	2.3	67	74	37	57	1.46	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	120.7		
01/24/15	7	20,900	22	0.104	7	1.568	0	4.20	8.80	12.00	0.00	0.00	0	0.0	0.0	2,357	1.6	66	76	36	51	1.23	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	3.7	119.9		
01/17/15	6	20,929	40	0.188	2	1.432	0	13.00	7.92	10.80	0.00	0.00	0	0.0	0.0	2,471	1.7	70	75	33	50	0.95	0.00	10.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	7.5	119.7	IBNC/IBD	
01/10/15	5	20,971	23	0.108	6	1.234	0	9.00	3.00	4.10	0.00	0.00	0	0.0	0.0	5,626	3.8	74	76	34	48	0.69	0.00	12.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	8.5	119.5		
01/03/15	4	21,000	31	0.146	0	1.097	0	12.00	6.00	8.20	0.00	0.00	0	0.0	0.0	4,784	3.3	77	79	21	42	0.00	0.00	14.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	0.0	119.3	IBNC	
12/27/14	3	21,031	19	0.089	0	0.951	0	18.00	5.00	6.80	0.00	0.00	0	0.0	0.0	2,226	1.5	80	83	37	55	0.00	0.00	16.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	0.0	119.1		
12/20/14	2	21,050	23	0.108	0	0.862	0	23.00	2.00	2.70	0.00	0.00	0	0.0	0.0	2,082	1.4	83	86	38	53	0.00	0.00	18.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	0.0	119.0	ST; ECOL...	
12/13/14	1	21,073	158	0.744	0	0.754	0	25.00	0.50	0.70	0.00	0.00	0	0.0	0.0	998	0.7	88	91	39	60	0.00	0.00	20.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	0.0	118.9		
12/06/14	0	21,231	2	0.009	0	0.009	0	25.50	0.14	0.20	0.00	0.00	0	0.0	0.0	36	0.2	90	93	31	53	0.00	0.00	24.00	0.0	0.0	0.0	0	0.00	********	0	1	0	********	0.0	118.0	HATCHE...	

Calendar Date	Age in W...	Current Birds in Rows	Mort...	% Mort.	Ro...	Bird Change	Feed Formula	Mill Prod. Orders	Feed Delive...	Tank Inv 1	Tank Inv 2	Tank Inv 3	Tank Inv 4	Feed Inv...	Tons Fed/ Day	Lbs/ 100	Lbs/ Doz.	Dozen Eggs Per Day	% Prod	Water Consu... per Day	Ave Gallons / 100	In Low Temp	In High Temp	Out Low Temp	Out High Temp	Ave Body Wt Hen	Unifor... %	Ammonia	Hours Light per Day	Case Wt	Sp. Grav.	Daily Egg Mass	Rod...	Flies	Current Cages in Rows	Cur Ave Bds/cg	Birds Wei...
03/15/15	15	20,627	0	0.000	0	0	OOFN14000	0	0.00	6.00	12.00	0.00	0.00	18.00	2.00	19.4	0.00	0	0.0	312	1.5	69	74	52	70	2.82	0.00	0.00	0.00	0.0	0	0.00	0	0.00	1	********	1.(
03/16/15	15	20,627	0	0.000	0	0	OOFN14000	0	0.00	4.50	12.00	0.00	0.00	16.50	1.50	14.5	0.00	0	0.0	405	2.0	67	75	42	63	2.82	0.00	0.00	10.00	0.0	0	0.00	0	0.00	1	********	1.(
03/17/15	15	20,627	0	0.000	0	0	OOFN14000	0	0.00	3.00	12.00	0.00	0.00	15.00	1.50	14.5	0.00	0	0.0	420	2.0	68	76	40	58	2.86	0.00	0.00	0.00	0.0	0	0.00	0	0.00	1	********	1.(
03/18/15	15	20,627	0	0.000	0	0	OOFN14000	1	0.00	2.00	12.00	12.00	0.00	26.00	0.91	8.8	0.00	0	0.0	559	2.7	67	75	40	68	2.96	0.00	0.00	0.00	0.0	0	0.00	0	0.00	1	********	5.(
03/19/15	15	20,626	1	0.005	0	0	OOFN14000	0	0.00	0.50	12.00	12.00	0.00	24.50	1.50	14.5	0.00	0	0.0	419	2.0	66	75	35	61	2.90	0.00	0.00	0.00	0.0	0	0.00	0	0.00	1	********	1.(
03/20/15	15	20,625	1	0.005	0	0	OOFN14000	0	0.00	11.50	11.50	0.00	0.00	23.00	1.50	14.5	0.00	0	0.0	453	2.2	66	76	35	70	2.91	0.00	0.00	0.00	0.0	0	0.00	0	0.00	1	********	1.(
03/21/15	15	20,625	0	0.000	0	0	OOFN14000	0	0.00	11.50	9.50	0.00	0.00	21.00	2.00	19.4	0.00	0	0.0	335	1.6	68	75	46	56	0.00	0.00	0.00	0.00	0.0	0	0.00	0	0.00	1	********	0.(

Gathering and Transport of Eggs

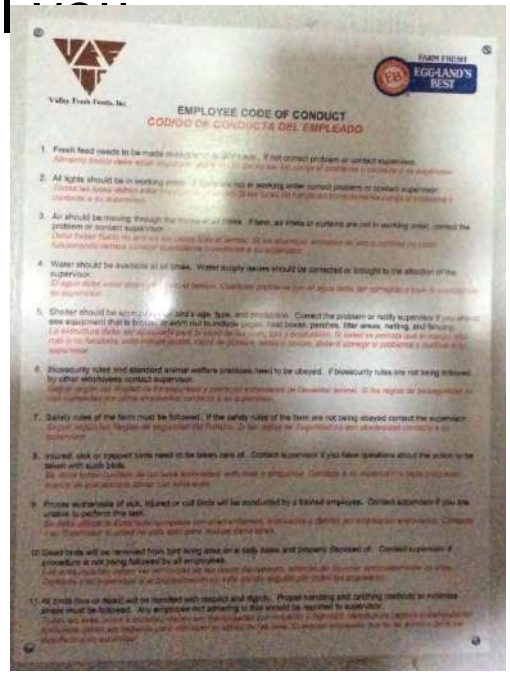
- Farm packer vs. hand gather
- Future egg grading onsite?
- Egg Pickup Schedule
  - Adequate materials
  - Cooler temps

Feed and Nutrition

- Feed Supply
  - Non organic feed from own mill
  - Organic Feed Supply
    - Outside Purchase vs. In house
    - Commodity Procurement
    - Cost Analysis
    - Backup Supplier
- Higher Energy Level? – More active birds
  - Monitor body weights and egg size

People perspective –Ergonomics

- Training people that have limited to no poultry experience
  - Code of Conduct
- Working with the birds
  - Dark coveralls – less anxiety
  - Sit in house and watch what the birds tell
- Tall systems – climbing
  - System (not in nest) egg retrieval
- Short systems
  - Head room



Certifications for Animal Care, Organic, Egg Safety Rule, CAFO

- What customer requirements
- Written operating plans
- Training new employees
- On farm documentation
  - Rodents, flies, ammonia, cooler temps, biosecurity
- Lead time for audits

FDA

USDA ORGANIC

CERTIFIED HUMANE RAISED & HANDLED

Summary

- We produce Cage Free/Organic because the market demands it
  - Double digit growth, exceeding customer forecasts
- There are definite differences in management needs more hands on
- Steep learning curve for beginners
  - Lighting
  - Equipment layout
  - Training birds
  - Training employees
- Costs are definitely higher, even with remodeling
  - You will not budget for everything needed
- Technology is very helpful in making information visible
  - Especially for a farm some distance away from home base – remote cameras?

Questions

??

- moldenkamp@vffi.com
- 503-982-2800 x260