



# Poultry House Environmental Controllers

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# Ventilation

- Warm Weather- 7 to 8 months
- Cool Weather- 4 to 5 months
- Changing your Mindset between Warm & Cool

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# Setup The Controller



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## Seven Things to Know and Do

- Know your House
- Know your Controller
- Know what you want to accomplish
- Record your Setup
- Setup the Controller
- Observe the Birds/House
- Make adjustments as needed

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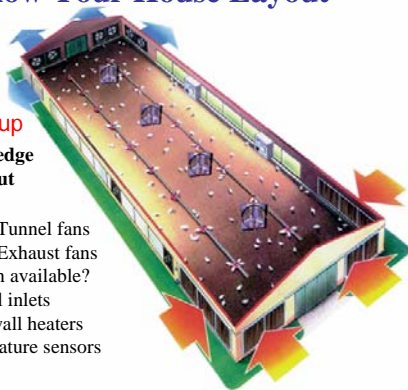


## Know Your House Layout

### Controller Setup

Requires a Knowledge of the House Layout

- Number of useable Tunnel fans
- Number of useable Exhaust fans
- Is the Tunnel curtain available?
- Number of side wall inlets
- Brooders and side wall heaters
- Location of Temperature sensors



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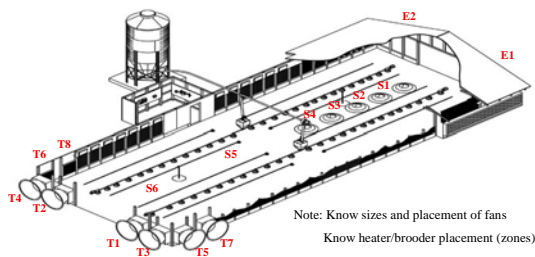
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## Know Your House Layout



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## Know Your Controller

- Know how to assign an output relay (Fans, Curtains, Inlets, and Heat)
- Know how to set on/off temperatures
- Know how to assign your Min Vent Timer
- Know how to assign temperature Sensors
- Know how to setup Set Temp/Min. Vent. Curves and Static Pressure settings

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## Know What You Want To Accomplish

- Create a Brood setup
- Create a Grow-out setup
- Concerns:
  - Air quality
  - Proper temperatures
  - Floor conditions
  - Flock performance

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## Record Your Setup

Summer Brood

Temp	ON	OFF	Output	Timers	Sensors	Mode	
80		79			56	T	
84		77			56		
83	82	77			56		
81		76			56		
80		75			56		
79		75			56		
75	75	75	1 (FAN) 1 (CURT) 1 (INLET) 1 (HEAT)		56		
76		73			52M	PT	
75		72			52M	PT	
73		E2			52M	P	
72		E1			Min.Vent	52M	PT
72		E1			Min.Vent	52M	P
70		Set Temp					
68		H1			1	P	
68		H2			2	P	
68		H3			3	P	
68		H4			4	P	
50		HB			5	P	
40		HE			6	P	

Mode sensors      Min vent time  
 Power, 1,2,3,4,      45 on - 255 off  
 Tunnel 5,6

Winter Brood

Temp	ON	OFF	Output	Timers	Sensors	Mode	
81		80			46	PT	
80		79			46	PT	
79		78			46	PT	
75	75	75	1 (FAN) 1 (CURT) 1 (INLET) 1 (HEAT)		52M	PT	
76		73			52M	PT	
75		72			52M	PT	
73		E2			52M	P	
72		E1			Min.Vent	52M	PT
72		E1			Min.Vent	52M	P
70		Set Temp					
68		H1			1	P	
68		H2			2	P	
68		H3			3	P	
68		H4			4	P	
50		HB			5	P	
40		HE			6	P	

Mode sensors      Min vent time  
 Power, 1,2,3,4,      30 on - 270 off  
 Tunnel 5,6

Example Only

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## Setting Backups

Make sure that the fans and air inlets you are using for backup are:

- Uncovered
- The same fans you are using in the Controller setup
- Set to operate if needed

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## Routine problems

- Excessive energy usage
  - Improper programming
- Blown boards
  - Condensation
  - Lightning strikes/Power surges
- Improper programming
- Sensor placement and height

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## Using Available Information

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## Information

- In order to make decisions you must have information.
  - The better the information...the better the decisions.
  - The more timely the information...the quicker problems can be identified

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## Because of the lack of farm performance data:

- When flocks perform poorly it is difficult to determine what may have gone wrong
- Equally as important when flocks perform well there is also little information what was done right.

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## Dataloggers

- Temperature
- Temperature/Rh
- Light
- Water
- Etc.



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## Dataloggers

- Record information every minute to every hour
- Downloaded every couple of weeks or at the end of the grow-out.



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## Downside of Dataloggers:

- Information is dated
  - Days...or weeks old
  - Problems may have come and gone
- Difficult to do in depth analysis:
  - Between houses...
  - Between farms
  - Between flocks
- Significant time commitment!

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## Time commitment

- Each House...
  - Turn on computer
  - Get data logger
  - Data Retrieval
  - View information
  - Reprogram data logger
- Easily 10 – 20 minutes per house



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## Other solution..

- Modern controllers can to one extent or another keep records



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## Poultry House Environmental Controllers

- Modern controllers can to one extent or another keep records of:
  - High and low temps
  - Water usage
  - Alarm conditions
  - Heater runtime
  - Fan runtime
  - Mortality



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## House information via controller

- Limited history
  - Average house temps
  - Max/Mins
  - Getting better...
- Difficult to spot trends
  - Few do graphing

Date	Time	Temp	Humidity	...
11.11.11	12:00	18.5	45	...
11.11.11	13:00	19.2	48	...
11.11.11	14:00	20.1	50	...
11.11.11	15:00	19.8	49	...
11.11.11	16:00	18.9	46	...
11.11.11	17:00	18.1	44	...
11.11.11	18:00	17.5	42	...
11.11.11	19:00	17.0	40	...
11.11.11	20:00	16.5	38	...
11.11.11	21:00	16.0	36	...
11.11.11	22:00	15.5	34	...
11.11.11	23:00	15.0	32	...

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## Further improvement

- Typically involves placing a pc on the farm.
  - More graphing capabilities
  - More data storage



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## House information via PC

- Computer Software

The screenshot shows a software interface with several windows. A 'Select Sample codes' dialog box is open, featuring two list boxes: 'Control' and 'Selection'. The 'Control' list includes codes like 'House 5', 'House 6', 'House 7', 'House 8', and 'House 9'. The 'Selection' list includes 'House 5 Voltage', 'House 6 Voltage', 'House 7 Voltage', and 'House 8 Voltage'. To the right, there are two columns of sensor codes: 'Avg Temp', 'Ear temperature', 'Dug Temp', 'Ear temperature', 'Ear temperature', 'Ear temperature', 'Ear temperature', 'Ear temperature', 'Ear temperature', 'Ear temperature', 'Humidity', 'Humidity', 'Humidity', 'Humidity', 'Humidity', 'Humidity'. At the bottom, there are buttons for 'End', 'Export', 'Data', and 'Cancel'. In the background, a window displays a multi-line graph with several data series plotted over time.

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# Temperature




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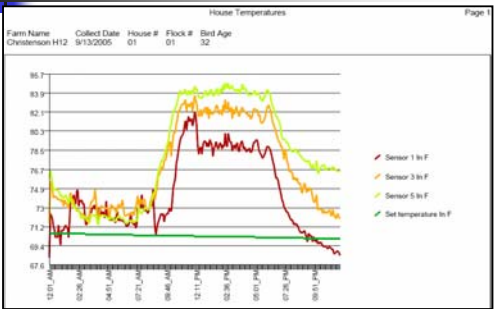
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# Temperature




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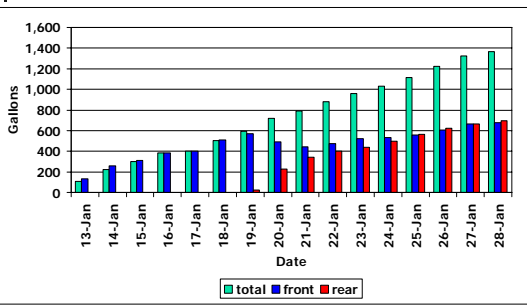
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# Broiler house water usage




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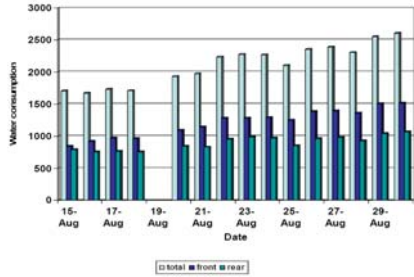
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## Bird Distribution (migration fence problem)



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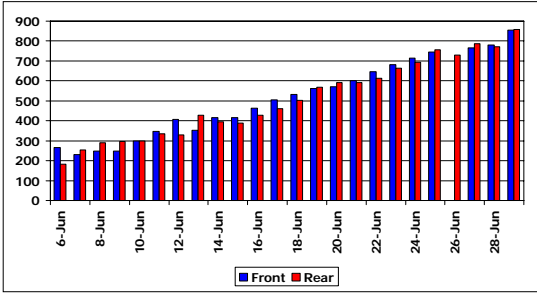
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## Top producer



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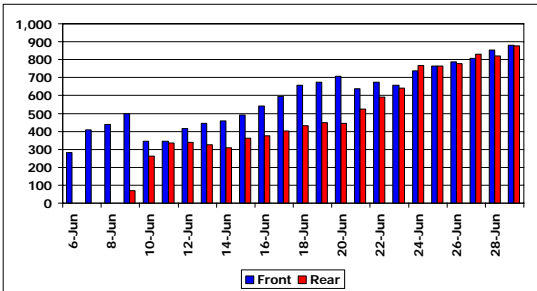
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## Poor producer



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## There are still weaknesses

- Expense
  - Computer
  - Maintenance
- User needs to be computer literate
- Data utilization
  - By grower
  - By company
  - Still difficult to analyze farm performance data
- Time..

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## There are still weaknesses:

- No information database
  - Very few growers field reps store data at end of the flock
  - Software is not designed to make comparisons with pervious flocks
  - Virtually impossible to make comparisons between farms.
    - Software
    - Different farms may have different controllers.

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## What is needed...

- A system that can gather environmental and performance data from multiple farms automatically...
- Send brief reports to growers/ servicemen of the information they want to know
- Database the information for future analysis

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## Optional information:

- Bird weights
- Feed consumption
- Secondary water meters
  - Evaporative cooling pads
  - Nonbrooding end vs. brooding end
- Future environmental sensors
  - Air velocity
  - Carbon dioxide
  - Carbon monoxide
  - Etc.

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## Thank You!

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[www.poultry.uga.edu](http://www.poultry.uga.edu)  
[www.poultryventilation.com](http://www.poultryventilation.com)

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