### Environmental Management of Poultry Farms Growing NAE or ABF Birds

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### NPTC Mission:

Improve profitability of the live production sector of the US poultry industry by providing timely applied engineering research and education resulting in increased efficiencies in housing, equipment, energy and environmental control.









# Best Management Practices: Breeder Farm Egg Pack, Hatchery, chick delivery, 3-day mortality, 7-day mortality. Brooding, feed, water, litter condition, moisture, and quantity. Temperature and air quality management. The key is all aspects, every day, every flock. Minimize Stress, Minimize Challenge

## **Minimize Stress**

- 1. Direct relationship between performance and environment around the bird
- 2. Absolute temperature, wind chill temperature, thermal neutral zone, air quality, litter conditions, moisture, and depth.
- 3. Direct relationship between bird health and stress placed on bird due to poor environment

## We Are In Charge of Bird Programs From Dump to Catch



### We Have some control over---

- Litter
- Air volume
- Air temp
- Water
- Feed
- Floor temperature

















# Let's Look At 6 Categories Brooding Prep and Bedding Brooding Chicks Water Feed and Feeding Heat, Ventilation Air Quality House Design







## **Desired litter for best results**

- Needs to be dry and free from wet cake pieces
- Bedding Is Insulation From The Concrete Floor
- Sufficient Depth 4 inches approx. 10 cm
- Small particle size better absorption of moisture
- Don't top dress with large chip shavings:
  - Chicks can't scratch them/keep them worked up
  - They tend to slick over and start caking process
  - Act the same as big chucks of old cake







## Don't Rush The Process!!!

- Need a minimum of 14 days downtime between flocks
- Longer with small bird programs
- Consider "cycle time", not just downtime
- Give house time to rest
- Allows proper drying of litter and pad

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OFLIP





- The cool pad will draw heat from the chicks
- Need to pre-warm long enough to get warmth into the pad



### **Temperature - Litter**

- Pre-heat for 48 hours at least!, regardless of the time of year or climate
- Target temperature should be reached at least 24 hours before placement
- Concrete should be pre-heated to min. of  $28^{0}C/82^{0}F$
- Measure litter temperature. Targets: • Furnace heaters: 32°C/90°F
  - Brooders: 40.5°C/105°F (directly under)

### Check chick delivery vehicles to assure proper chick temperature upon farm arrival Area Max.91.2 95.9 C 91.2 Use data loggers to ponitor















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# 5. Heat and Ventilation, Poultry House Tightness

- Fans, heater, poultry house maintenance
- Do we have the right programs in the controller box











































WEEK	DAYS	CFM/BIRD	m³/hr/biro
1	1 - 7	0.10	.17
2	8 - 14	0.25	.425
3	15 - 21	0.35	.6
4	22 - 28	0.50	.85
5	29 - 35	0.65	1.1
6	36 - 42	0.70	1.2
7	43 - 49	0.80	1.2
8	50 - 56	0.90	1







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