

**Evaluation of Embryonic Metabolism and Heat
Production of High Yielding Broiler Breeds:
Single Stage Environment**

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Objectives (Single Stage Incubator):

- 1) Determine Heat Output of Different Strains of Broiler Breeder eggs during incubation as measured by CO₂ Output.
- 2) Study the Effects of Late Incubational Heat Challenge on Hatchability and Post-hatch Growth Efficiency
- 3) Calculate Heat Output by Age of Breeder Flock as measured by CO₂ Output.
- 4) Examine the Interaction of Temperature and Humidity on Chick Quality.



Summary:

- Heat production at maximum ranged between .18 and .22 watt/egg for the different strains. Romanoff (1960) values for maximum embryo/egg heat production was .11 watt/egg.
- Hatch of transferred eggs for the Control Shell Temperature (100 °F) treatment was significantly greater (90.12%) than for the High Shell Temperature (103 °F) treated eggs (83.79%)



Summary (continued):

- Increased late-dead (16 – 21 days incubation) embryos were found for eggs incubated at a shell temperature of 103 °F for last seven days of incubation when compared to a control temperature treatment (100 °F).
- Egg Shell Temperature should be maintained between 100 and 101 °F for optimum performance of high yielding broiler breeders (hatchability and chick growth)

