

**Breeder Feeding and Its Impact on  
Broiler Performance**

**N. Leksrisompong, H. Romero-Sanchez,  
and J. Brake**

Department of Poultry Science  
College of Agriculture and Life Sciences  
NC State University, Raleigh, NC 27695-7608

---

---

---

---

---

---

---

---

**"The Problem"**

**Paradigm and Paradox**

**"BIG is Bad"**

---

---

---

---

---

---

---

---



**"Peep Peep"**

---

---

---

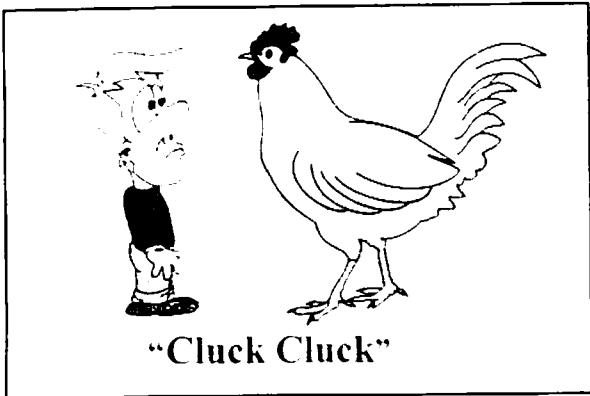
---

---

---

---

---



---

---

---

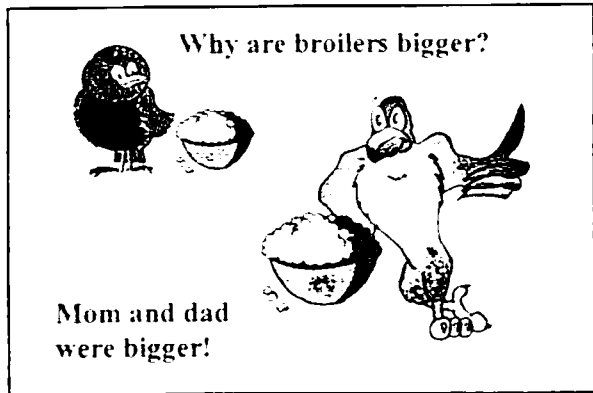
---

---

---

---

---



---

---

---

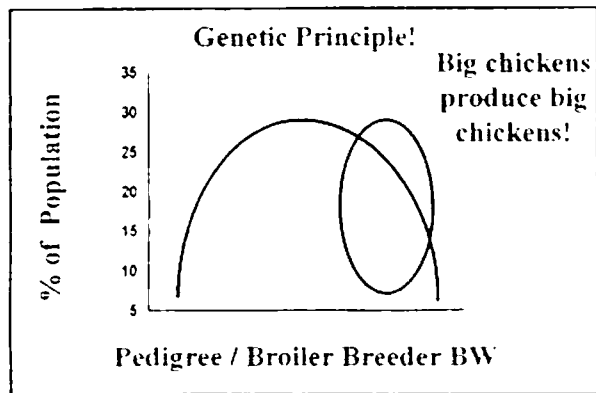
---

---

---

---

---



---

---

---

---

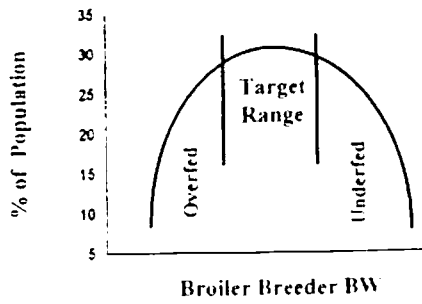
---

---

---

---

### Feeding Based On BW Uniformity Principle



---

---

---

---

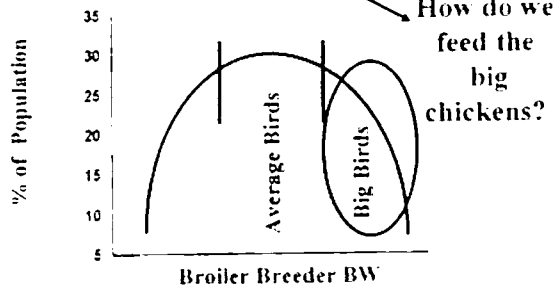
---

---

---

---

### Our Focus Today!



---

---

---

---

---

---

---

---

### Our Question



Are there "vertical" effects of broiler breeder management and nutrition that affect the broilers?

---

---

---

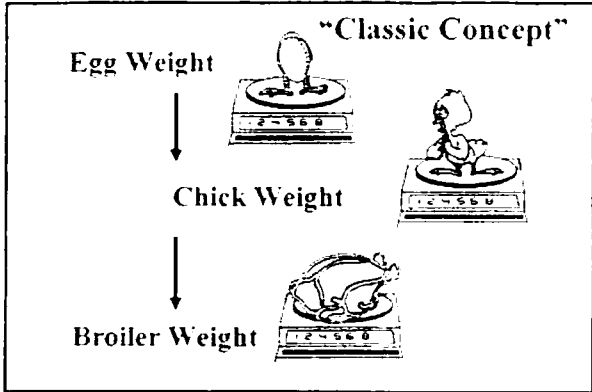
---

---

---

---

---




---

---

---

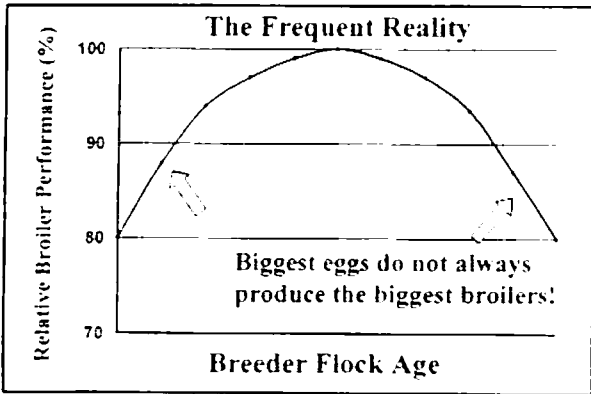
---

---

---

---

---




---

---

---

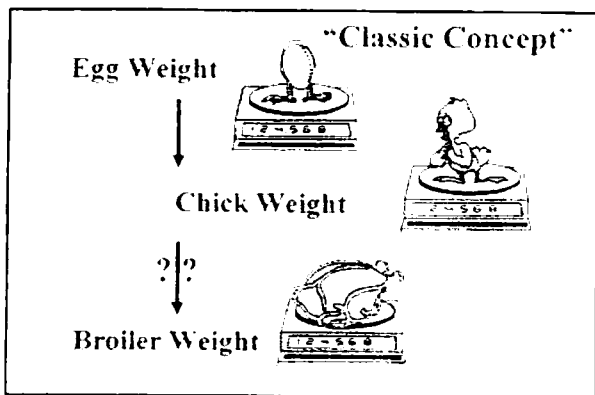
---

---

---

---

---




---

---

---

---

---

---

---

---

$$\frac{\text{Egg weight}}{\text{1 additional gram}} = \frac{\text{Broiler weight}}{\text{8.3 grams young flock} \quad \text{2.1 grams old flock}}$$

McNaughton *et al.*, 1978

---

---

---

---

---

---

---

---

### Our Question



Are there "vertical" effects of cumulative female broiler breeder nutrition?

---

---

---

---

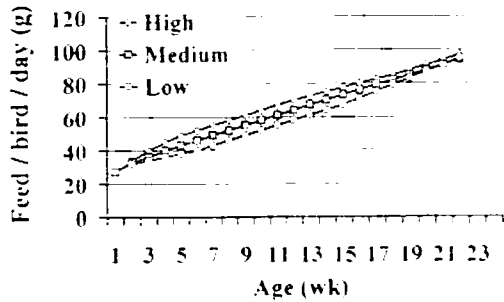
---

---

---

---

General Broiler Breeder Feed Allocation to 22 wk




---

---

---

---

---

---

---

---

Cumulative Nutrient Intake		Broiler Breeder Trial
ME (kcal)	Protein (g)	BB 2
27,780	1,485	High
26,020	1,391	Medium
24,240	1,296	Low

---

---

---

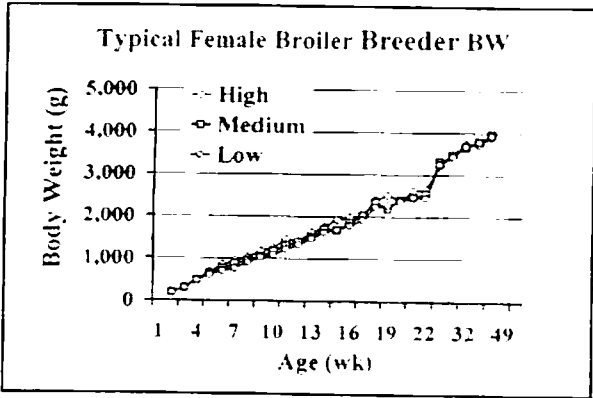
---

---

---

---

---




---

---

---

---

---

---

---

---

**Results**

---

---

---

---

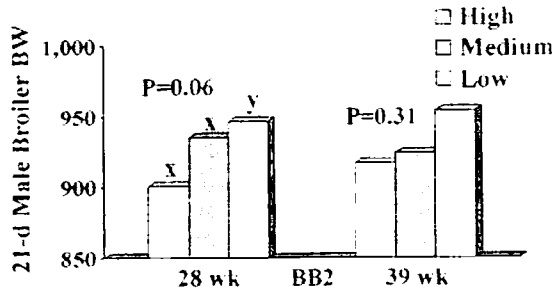
---

---

---

---

**The Effect of Cumulative Breeder Nutrition Was More Pronounced in Early Lay Breeders**




---

---

---

---

---

---

---

---

**What Does Our Data Say About Early Lay Breeders and Their Progeny?**

Cumulative Female BB Nutrition	21-d Male Broiler Body Weight
Higher	Higher
Lower	Lower

The genetic potential should not change.

---

---

---

---

---

---

---

---

**Typical Questions**

Were there differences in broiler breeder rate of lay, fertility, fertile hatchability, egg weight, egg shell quality, or body weight that could help explain the broiler data?

No!

---

---

---

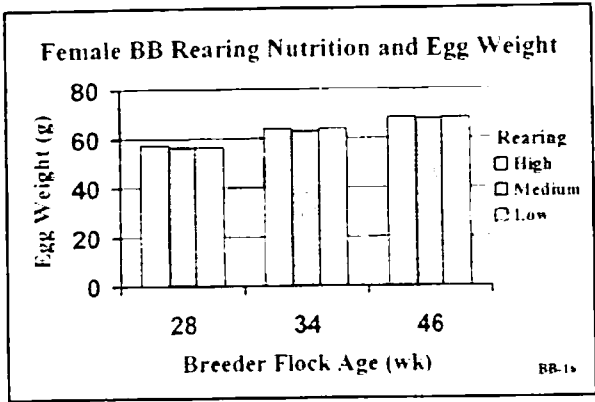
---

---

---

---

---




---

---

---

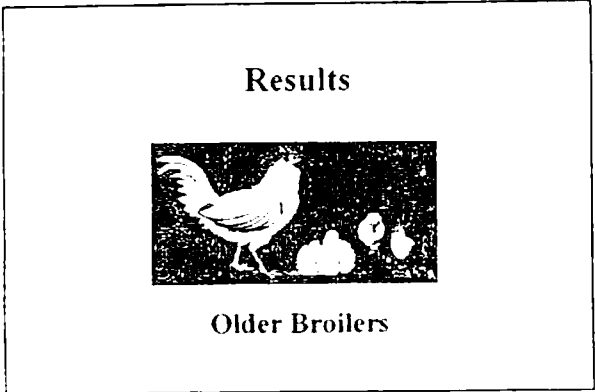
---

---

---

---

---




---

---

---

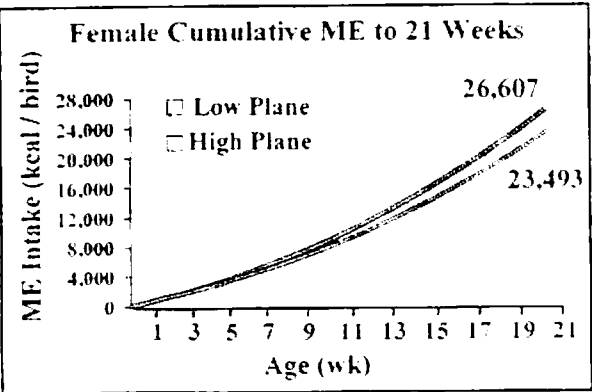
---

---

---

---

---




---

---

---

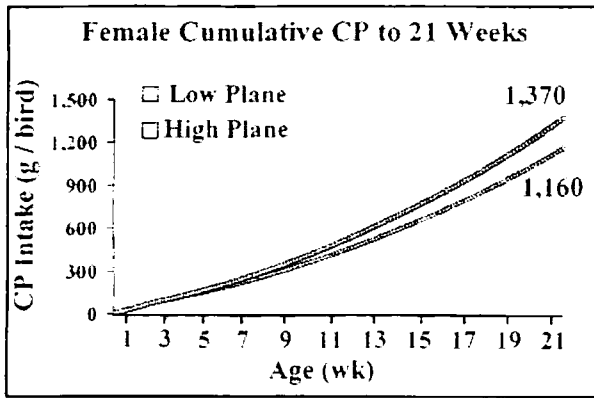
---

---

---

---

---




---

---

---

---

---

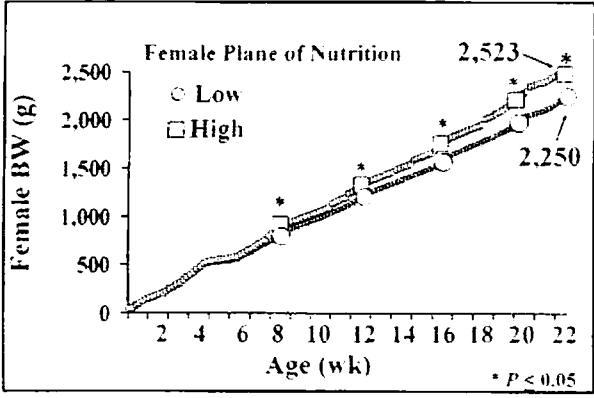
---

---

---

---

---




---

---

---

---

---

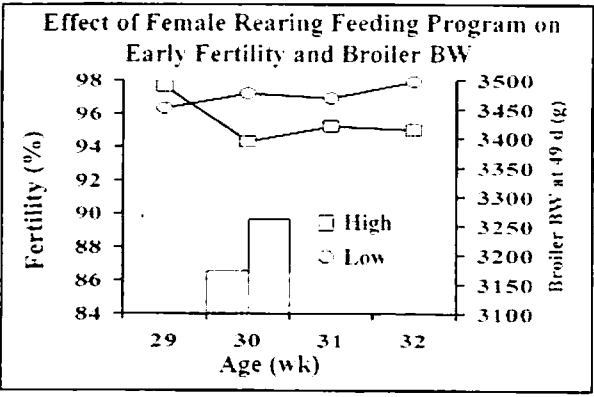
---

---

---

---

---




---

---

---

---

---

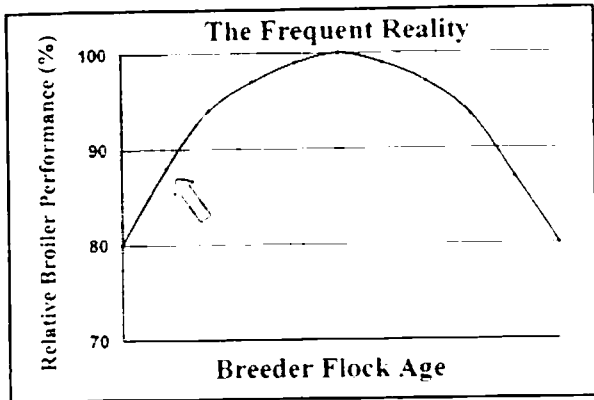
---

---

---

---

---




---

---

---

---

---


---

---

---

### Take Home Message!

Overly restrictive female body weight control during rearing may not result in the longest broilers at the start of lay!




---

---

---

---


---

---

---

---

### Our Question



Are there "vertical" effects of cumulative male broiler breeder nutrition?

---

---

---

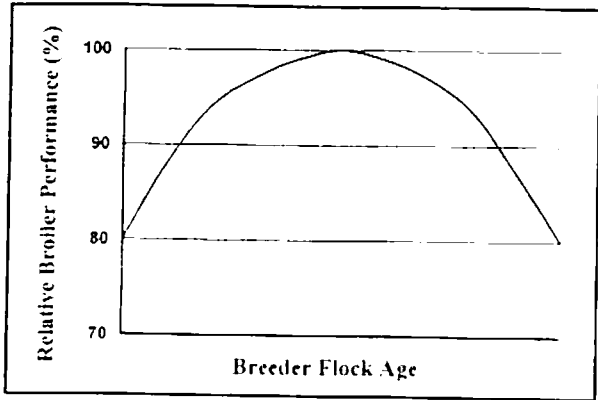
---

---

---

---

---




---

---

---

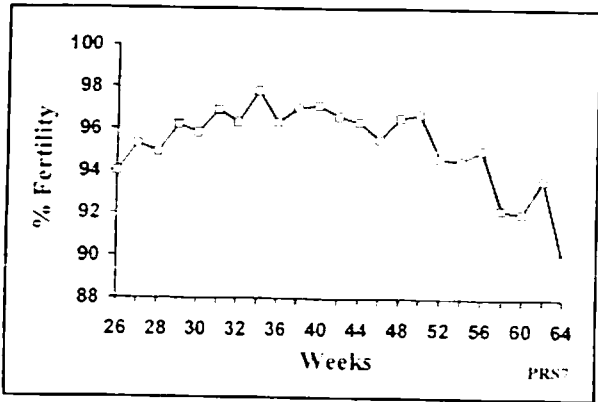
---

---

---

---

---




---

---

---

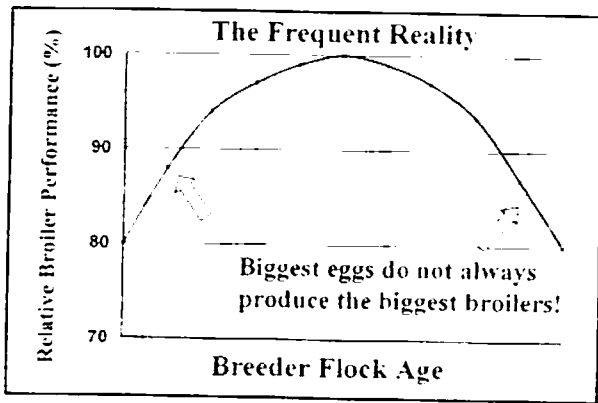
---

---

---

---

---




---

---

---

---

---

---

---

---

### Fertility and Broiler Performance

There appears to be a relationship between male sexual maturity, fertility, and broiler performance.

Let us explore this a little more...

---

---

---

---

---

---

---

---

### Results



Older Broilers

---

---

---

---

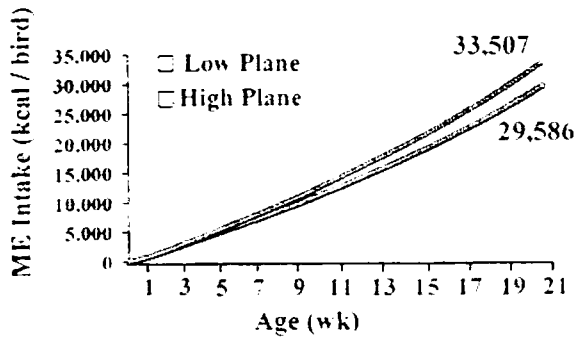
---

---

---

---

Male Cumulative ME to 21 Weeks



---

---

---

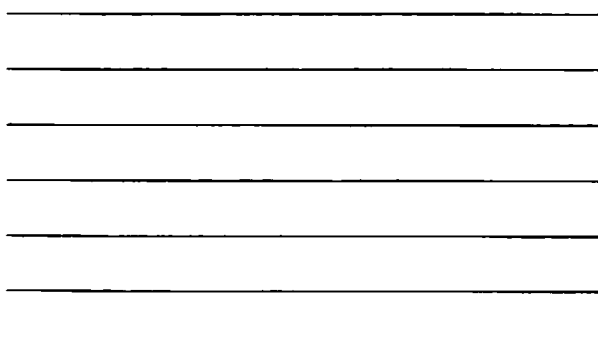
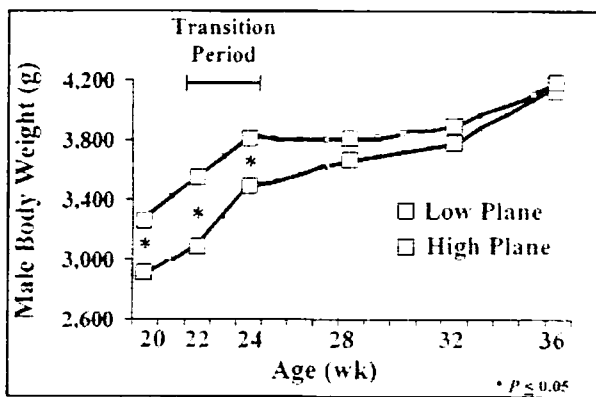
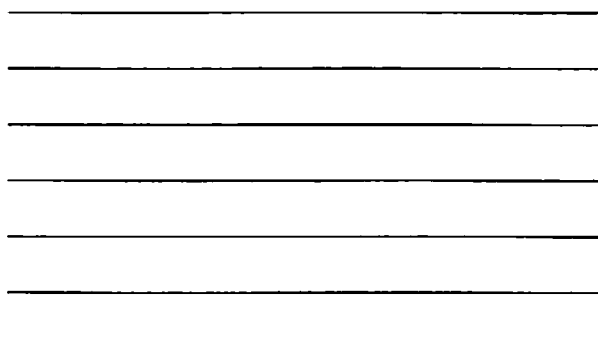
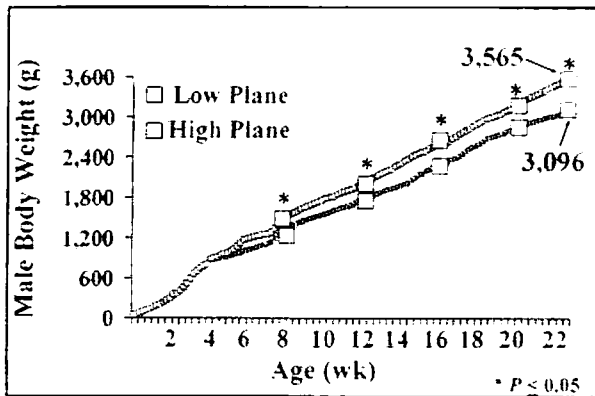
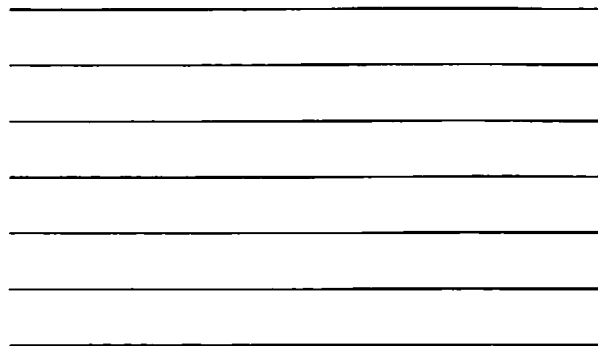
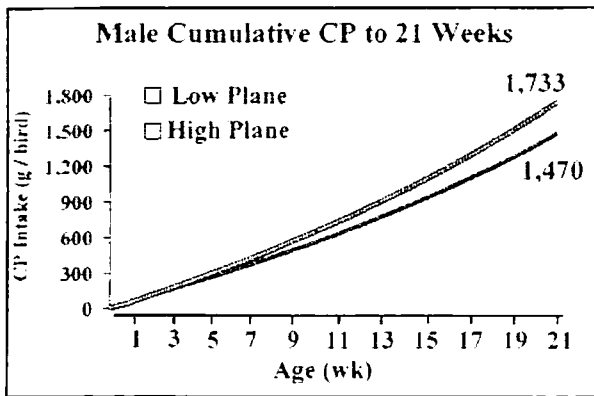
---

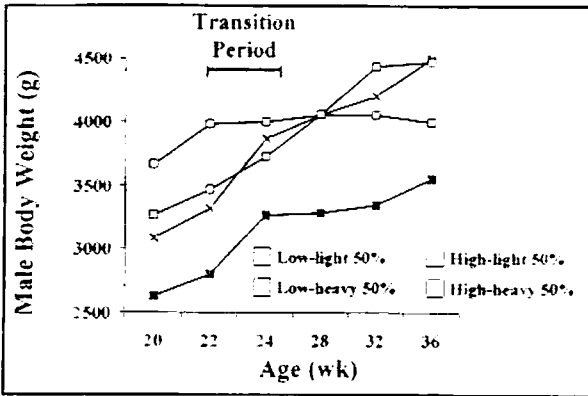
---

---

---

---






---

---

---

---

---

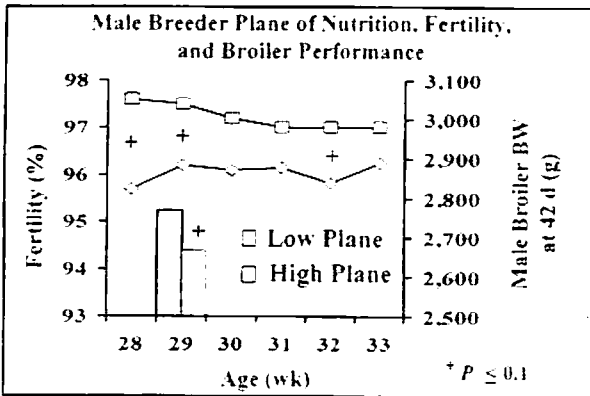
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

### Fertility and Broiler Performance

There appears to be a positive relationship between fertility and broiler performance.

- ....i.e., more males mating means...
- ....better fertility....and....
- ....more large males mating!

---

---

---

---

---

---

---

---

---

---

The Effect of Daily Broiler Breeder Male Energy Intake on Broiler Body Weight  
15 Years Ago!

Broiler	Male ME Intake (kcal/day)		
	300	340	380
Chick BW (g)	43.1	43.7	43.8
42 d BW (g)	1,809 <sup>a</sup>	1,844 <sup>b</sup>	1,885 <sup>a</sup>

Attia et al., 1993

<sup>a,b</sup> P ≤ 0.05

---

---

---

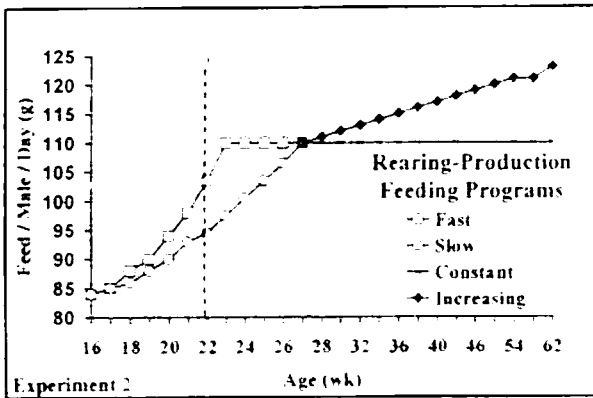
---

---

---

---

---




---

---

---

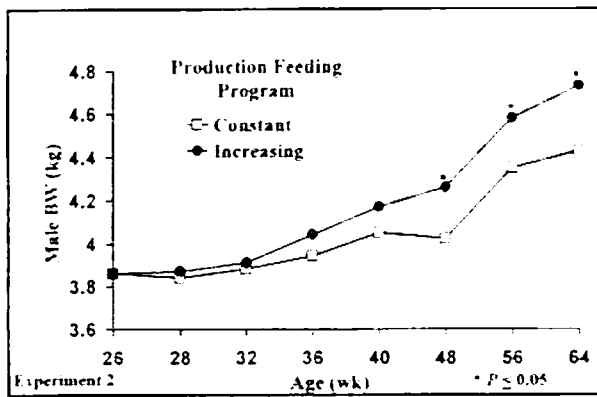
---

---

---

---

---




---

---

---

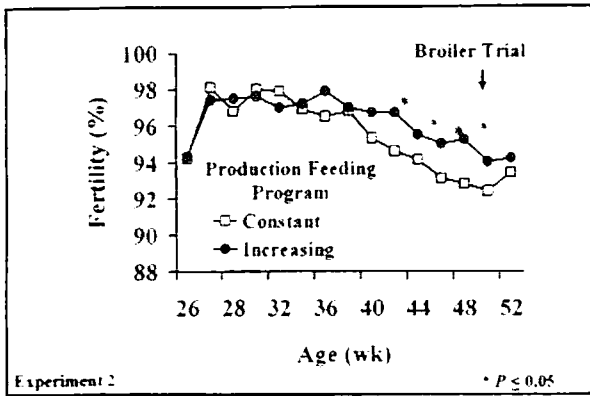
---

---

---

---

---




---

---

---

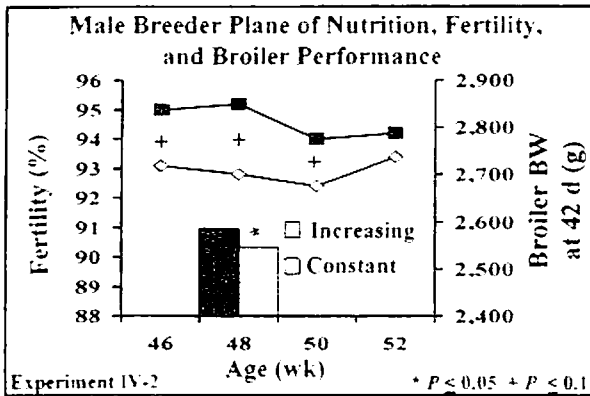
---

---

---

---

---




---

---

---

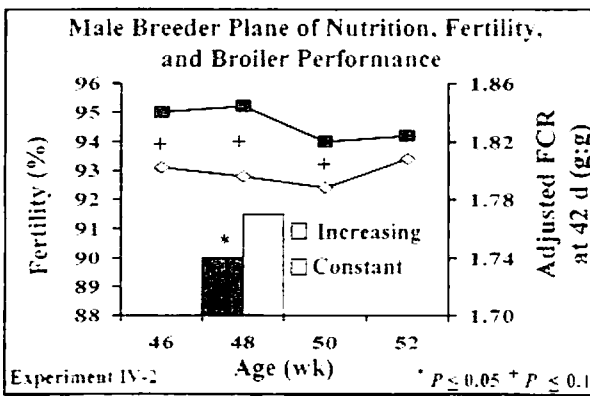
---

---

---

---

---




---

---

---

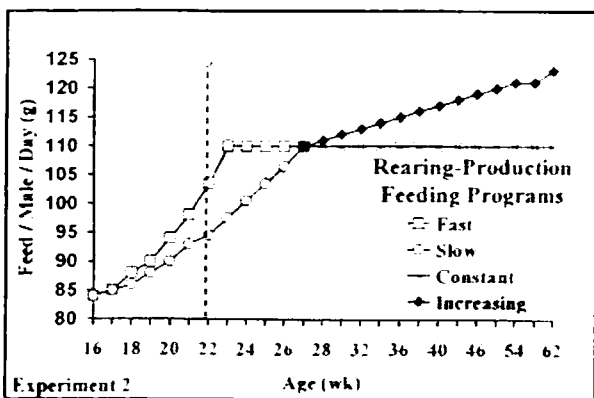
---

---

---

---

---




---

---

---

---

---

---

---

---

**Fertility and Broiler Performance**

There appears to be a relationship between male fertility and broiler performance. If there is little difference in male fertility there will be no difference in broiler performance. But...if male fertility decreases...so will broiler performance...and...  
...where do we make our money?

---

---

---

---

---

---

---

---

**Take Home Message!**

You have to feed the big males to get big broilers!




---

---

---

---

---

---

---

---