FEEDING THE MODERN EGG-TYPE PULLET TO SEXUAL MATURITY

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FEEDING AND GROWING PULLETS.......THIS IS THE GOAL
EGG PRODUCTION
PHASE FEEDING CONSIDERATIONS

![Graph showing egg production, weight, and mass over age (weeks)]
Egg-Type Pullets/Laying Hens

BODY PROTEIN /BONE DEPOSITION OCCURS MOSTLY HERE

Peak egg production
Egg-Type Pullets/Laying Hens

Very rapid growth occurs during the growing period, with critical phases occurring at weeks 6 and 12. The laying period begins at week 16-18 and continues to week 25.
FACT:
MINERAL NUTRITION DURING THIS PERIOD IS FOR THE DEVELOPMENT OF TRABECULAR/CORTICAL (STRUCTURAL) BONE NOT MEDULLARY BONE
FLOCK UNIFORMITY AT 16 WEEKS OF AGE IS RELATED TO HIGH EGG PRODUCTION AND LOW MORTALITY DURING THE LAYING PERIOD

WHAT DO WE KNOW?
Pullet Body Weights
“Rule of Thumb”
(strains vary)

Performance

Growing Period

Laying Period

GOOD UNIFORMITY

450g  900g  1350g

6      12     16-18  25

Weeks of Age
Gut Health Must Be Maintained

GROWING THE PERFECT PULLET
FACT:
GROWTH UP TO 6 WEEKS IS ORGAN DEVELOPMENT (HEART, LIVER, KIDNEY, LUNGS)
“EXCELLENT NUTRITION IS ESSENTIAL HERE”
GUT HEALTH IS OF EXTREME IMPORTANCE HERE
PULLETS THAT HAVE A RELATIVE HEAVY WEIGHT AT SIX WEEKS OF AGE WILL PERFORM BETTER THROUGHOUT THE ENTIRE LAYING PERIOD.
IMPORTANT CONCEPT TO REMEMBER:

ONCE EGG PRODUCTION BEGINS
BIG BIRDS REMAIN BIG AND SMALL BIRDS REMAIN SMALL

WE ONLY HAVE ONE CHANCE TO DEVELOP BODY WEIGHT DURING THIS PERIOD

ONCE EGG PRODUCTION BEGINS IT IS TOO LATE TO CORRECT BODY WEIGHT
DECREASED PULLET BODY WEIGHT

LESS THAN DESIRED FEED INTAKE

LESS EGG SIZE
EXPERIMENT WITH COMMERCIAL LAYING HENS (FLORIDA LAYING HEN INDUSTRY)
Body weight of laying hens
5 birds/cage hot environment
WITH THE LAYER STRAINS WE HAVE TODAY, DO LARGE DIFFERENCES IN PULLET GROWING PROGRAMS AFFECT SUBSEQUENT LAYING HEN PERFORMANCE?

NO

PROVIDED THAT BODY WEIGHT AND UNIFORMITY ARE ATTAINED AT 16 WEEKS OF AGE
IMPORTANT FACT TO REMEMBER

WITH ALL STRAINS OF EGG-TYPE BIRDS USED TODAY, PERFORMANCE IN THE LAYING HOUSE WILL BE ADVERSELY AFFECTED BY ANY FACTOR THAT REDUCES MATURE BODY SIZE

THIS IS ESPECIALLY TRUE IN HOT WEATHER
WHAT TWO FACTORS AT 16 WEEKS OF AGE WILL DETERMINE IF A FLOCK OF YOUNG PULLETS WILL BE A SUCCESS WHEN THEY ARE PLACED IN THE LAYER HOUSE?

BODY WEIGHT AND UNIFORMITY
PROPER NUTRITION AND NUTRITION MANAGEMENT OF THE PULLET HERE IS ESSENTIAL.
GROWTH CURVE of the Commercial Egg-Type Pullet
PROBLEM: LOW BODY WEIGHT
YOU MUST CONTINUE TO FEED HIGHER PROTEIN DIET UNTIL THE STD. BODY WEIGHT IS REACHED FOR AGE (ESPECIALLY UP TO 10-12 WEEKS OF AGE)

WHY?
TYPICAL BODY WEIGHT CURVE

IN ORDER TO UNDERSTAND WHY WE MUST UNDERSTAND HOW THE PULLET GAINS WEIGHT DURING THIS PERIOD

INFLECTION POINT

MORE GAIN

LESS GAIN

...NOTICE...

LINE SLOPES ARE DIFFERENT

Hyline W-36
THIS IS NOT A LOSS IN BODY WEIGHT (IT IS LESS GAIN)

GAIN CURVE

Pounds of gain per week for commercial egg-type pullets

MAXIMUM GAIN

.90# = 34%
1st 6 wks weight gain

1.24# = 47%
2nd 6 wks weight gain

.52# = 19%
3rd 6 wks weight gain

Age (wks)

Gain (lbs/wk)
Pounds of gain per week for commercial egg-type pullets

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1st 6 wks weight gain: .90# = 34%
2nd 6 wks weight gain: 1.24# = 47%
3rd 6 wks weight gain: .52# = 19%

REPRODUCTIVE TRACT GROWTH
“ESTROGENS”

“PRE LAY DIET”
NOTICE THE AMOUNT OF GAIN DURING THE 1ST 12 WKS

81% OF MATURE BODY WEIGHT OCCURS BY 12 WEEKS OF AGE

ONLY 19% OF MATURE BODY WEIGHT OCCURS DURING THE NEXT 6-8 WEEKS
81% of mature body weight occurs by 12 weeks of age.

Feed the best diet possible and minimize stressors. This gain is inexpensive gain.

Gain here is $$ $$ $$ $$

81% of mature body weight occurs by 12 weeks of age.

\[ \text{Gain} (\text{lbs/wk}) \]

\[ \text{Age (wks)} \]

\[ .90\# = 34\% \quad 1.24\# = 47\% \quad .52\# = 19\% \]

1st 6 wks weight gain 2nd 6 wks weight gain 3rd 6 wks weight gain
FEED CONSUMPTION PATTERN of the Commercial Egg-Type Pullet
Feed consumption per week for commercial egg-type pullets

Feed consumption (lbs/wk)

Age (wks)

(55%) 6.9 lbs

(45%) 5.5 lbs
THEREFORE, BECAUSE OF THE PHYSIOLOGY OF GROWTH IT IS ESSENTIAL TO HAVE THE BEST NUTRITION POSSIBLE IN ORDER TO GAIN THE PROPER AMOUNT OF PULLET BODY WEIGHT EARLY IN THE GROWING PERIOD

Characterizing percent\(^1\) growth and feed consumption for commercial egg-type pullets

- Growth: 34 weeks to 47 weeks (81%)
- Feed: 55 weeks to 45 weeks
LETS PUT THE TWO CURVES TOGETHER
Body Wt Curve vs Gain Curve

Hyline W-36
PROBLEM….UNDERWEIGHT PULLETS

QUESTION: IS THERE SOMETHING WE CAN DO TO PUT MORE BODY WEIGHT ON THE PULLET DURING THE GROWING PERIOD?

GIVE 2 HR LIGHT FROM 12-2 a.m.
FEEDING CALCIUM DURING THE GROWING PERIOD

Egg Production (%)

CORTICAL & TRABECULAR BONE

MEDULLARY BONE

Sexual Maturity

Weeks of Age

17-18  25-26  65

12 14
MEDULLARY BONE
“NO STRUCTURAL FUNCTION”
CORTICAL BONE
“STRUCTURAL BONE”

TRABECULAR BONE
“SHOCK ABSORBER”

UNIQUE TO BIRDS
“LABILE”

UNDER ESTROGEN CONTROL
IMPORTANT CONCEPT

FOLLOWING SEXUAL MATURITY MEDULLARY BONE TAKES PRIORITY DURING THE LAYING PERIOD FOR CALCIUM DEPOSITION BECAUSE IT IS LABILE AND A SOURCE OF CALCIUM FOR EGG SHELL FORMATION
CONCEPT

When estrogen peaks at sexual maturity

Trabecular Bone (structural)

CORTICAL BONE FIXED
Total Bone Calcium Curve

- Estrogen
- Total Bone Ca
- EP

Weeks of Age
12 14 17-18 25-26 65

Sexual Maturity
PROBLEMS OFTEN ENCOUNTERED

EARLY DIP IN PRODUCTION
CAGE-LAYER FATIGUE
UROLITHIASIS
DOLOMITIC LIMESTONE
ALBUMEN QUALITY
EGG SHELL PIGMENTATION
MUCHAS GRACIAS