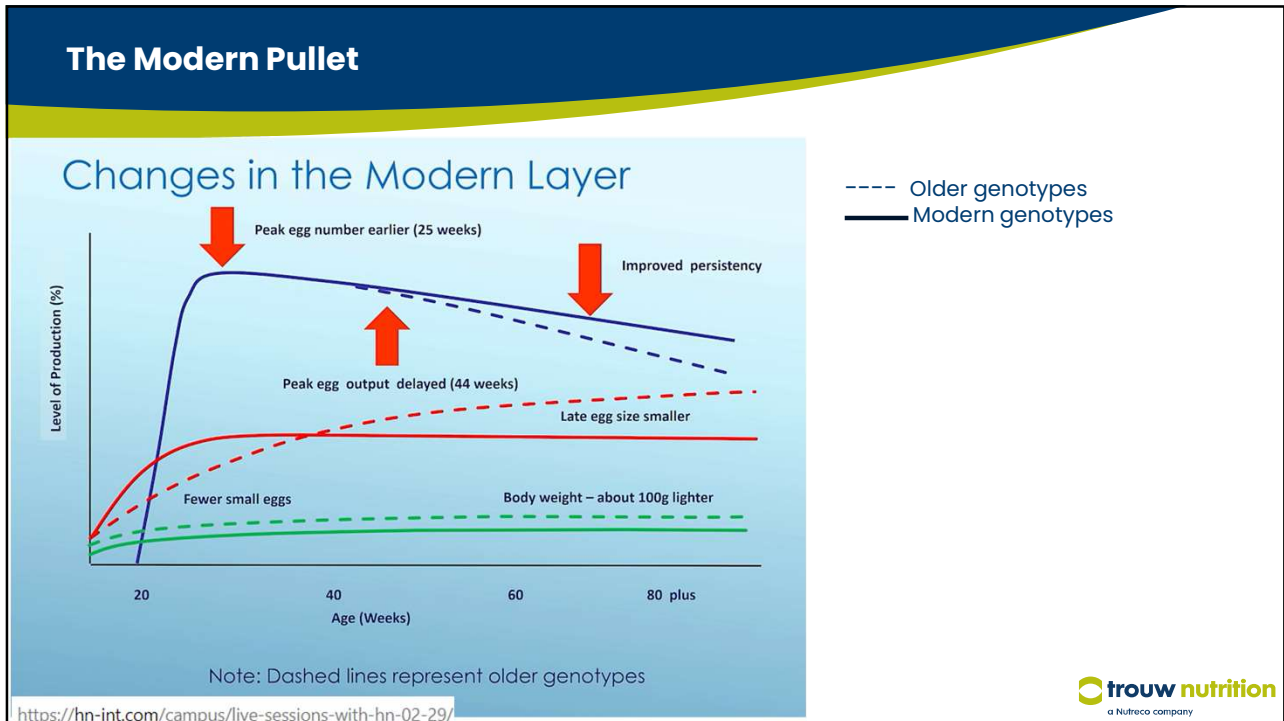


# Investing in Pullet Growing : Key factors for sucessful egg laying!

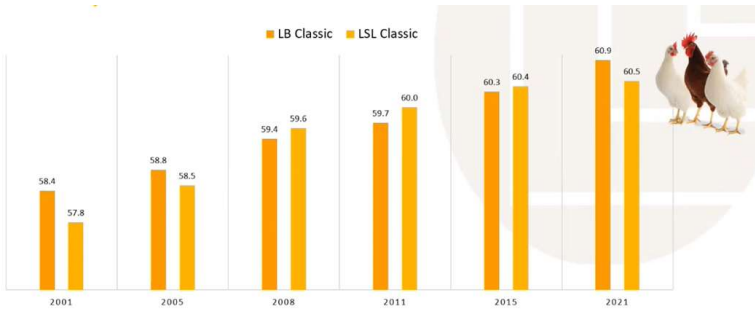
**AGM Pullet Growers of Canada**  
 April 9th 2024  
 Martine Bourgeois, agr





## Genetic Improvements

	1970	2020	Diff
Age at 50% laying (week)	26	20	-6
Egg mass at 70 (85) weeks (Kg)	15	20 (25)	34%
Daily intake (g)	127	115	-10%
FCR	3,15	2,05	-35%
Weight – adult (g)	2500	1950	-22%



LOHMANN-BREEDERS.COM

..... management &amp; nutrition??

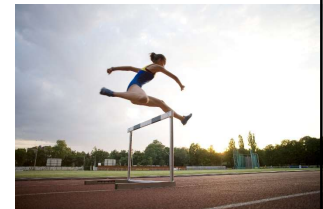
(Egg Mass 45 weeks Management Guides, Laumann Breeders, 2001, 2005, 2008, 2011, 2015, 2021)

  
a Nutreco company

## Today Genetics

The modern egg-laying pullet:

- ✓ Longer egg clutches (more eggs) → better persistency
- ✓ Early egg production & High peak production
- ✓ Still laying 1 egg per day!
- ✓ However → 500 eggs at 100 weeks old; 360 egg at 80 weeks old
- ✓ Higher amount of eggs produced
- ✓ Changing feeding habits → better feed conversion
- ✓ Bone health is crucial (shell quality, extended egg cycles)
- ✓ Lighter birds & lay smaller eggs
- ✓ Housing systems are evolving rapidly
- ✓ Improved environmental footprint
- ✓ More reliant on what happens during the growth stage! Everything starts with the pullets


  
a Nutreco company

### Key Success Factors

**Animal**

**Housing**

**Feeding**



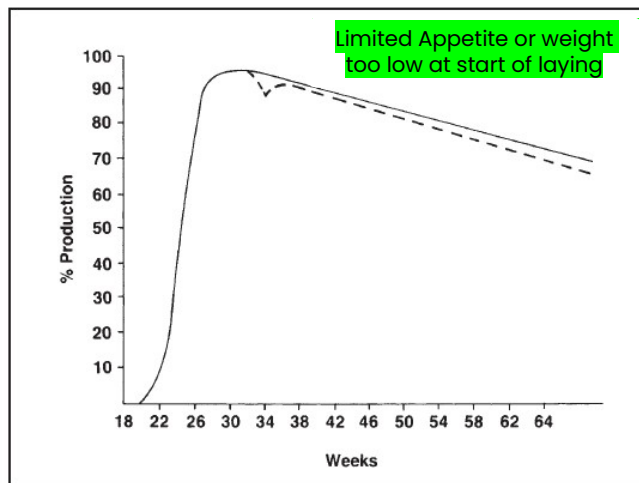
**Management**

**Health**

**Water**



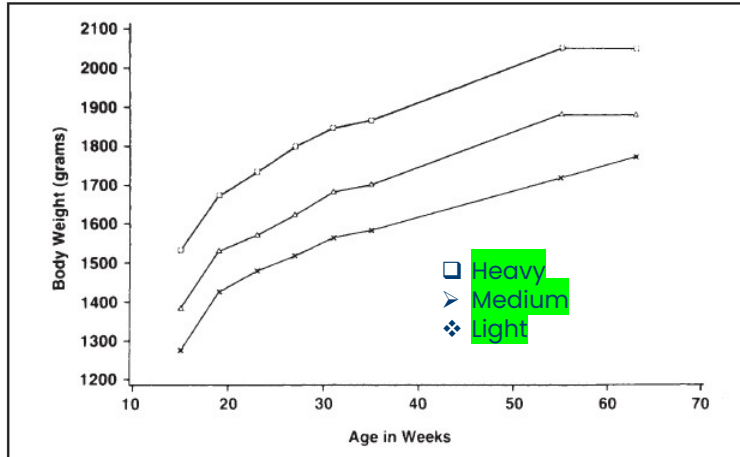
### If the target weight is not reached?



Leeson and Summers, 2009. Commercial Poultry Nutrition (3rd ed.)



**There's no going back once production has started!**



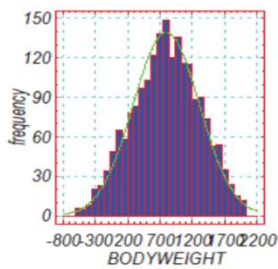
Leeson and Summers, 2009. Commercial Poultry Nutrition (3rd ed.)



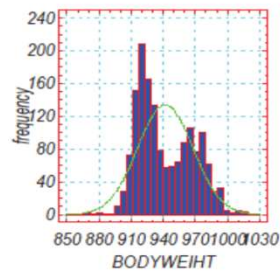
## The pullet development



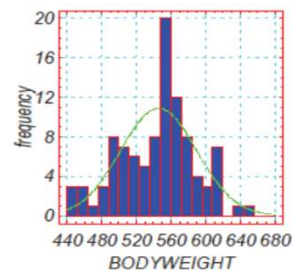
### Uniformity Chart



**Good Uniformity**



**Bad Uniformity**  
( some birds too light )



**Bad Uniformity**  
( big Variation )

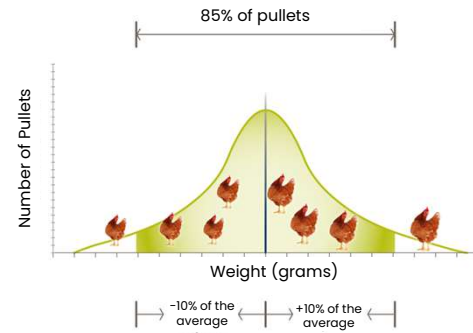
***A number of birds within 10% of the average weight.***

## The impact of flock uniformity

### Exemple of Uniformity:

Flock of 10 000 pullets – Average weight = 1.30 kg

- **80 % Uniformity**
  - 8 000 pullets  $\pm$  10% average weight
    - 1 000 pullets < 1.17 kg
    - 1 000 pullets > 1.43 kg
- **90 % Uniformity**
  - 9 000 pullets  $\pm$  10% average weight
    - 500 pullets < 1.17 kg
    - 500 pullets > 1.43 kg
- **100 % Uniformity**
  - 10 000 pullets  $\pm$  10 % average weight



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a Nutreco company

## Why is uniformity so important ?

- Nutritional needs are similar for all pullets
- Physiological state at the same stage of development
- Response to photostimulation is more uniform
- Nutritional reserves are similar throughout the flock
- Longer production cycles are easier to manage

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## Key Success Factors

Animal

Housing

Feeding



Management

Health

Water

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## Evolving Housing Systems

- Knowing how to adapt to rapidly changing markets
  - What do consumers want ? (Restaurants? Institutions? Groceries?)
  - What are other countries doing ? (EU, USA, ...)
  - What will be our needs in 1, 2, 5 and 10 years?
- To ensure a smooth transition => equipments should be similar for pullet growers vs egg farmers
  - Check with your egg farmer
  - Adapt equipment to facilitate the transition to the laying barn
  - Adapt to changes, and be imaginative

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## Key Success Factors

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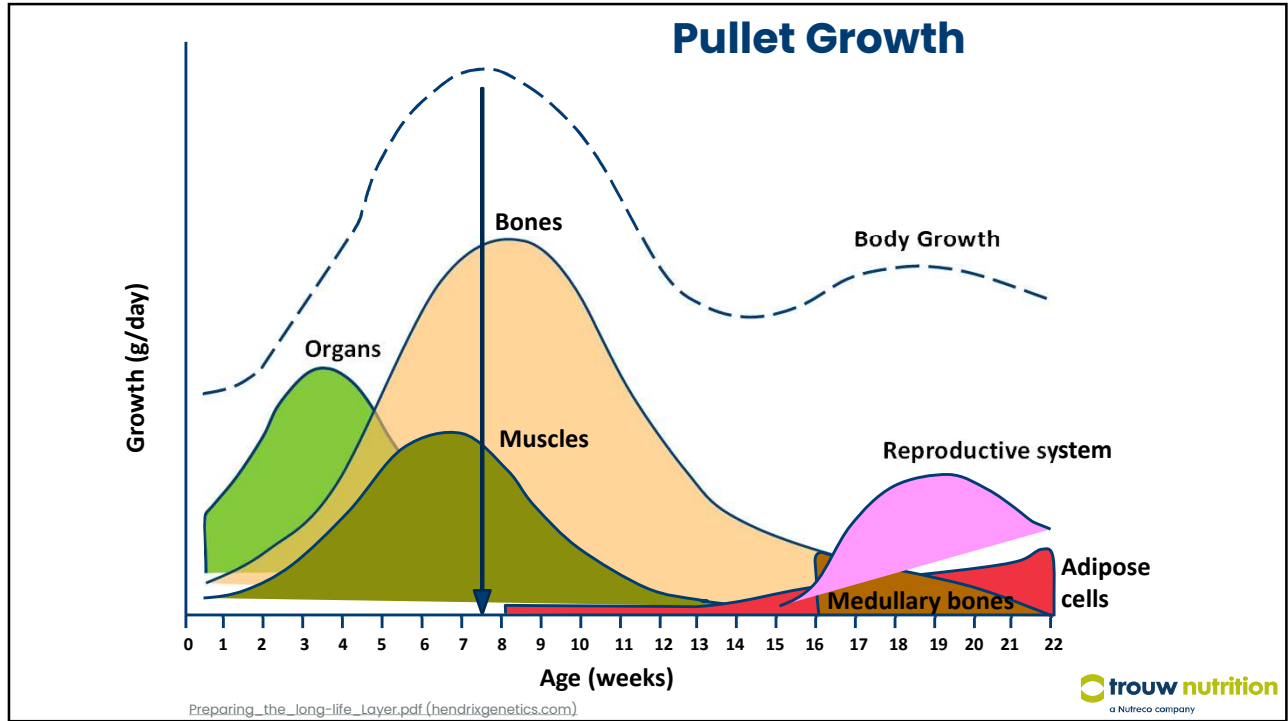
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## Feeding Goals

- Achieving good body composition in ready-to-lay pullets
  - Sufficient calcium in the bones
  - Well-developed organs from the 0 to 5 weeks stage
  - A positive energetic balance (reserves) at the beginning of egg production
  - Good feathering
  - Reserves in skeletal & medullary bones
    - Bone health & shell quality



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### Impact of starter phase on performances

	BW at 5 weeks	BW at 10 weeks	BW at 16 weeks	Uniformity at 16w
Persistency 68-72 weeks	✓ ✓ ✓	✗	✗	✓ ✓
Liveability at 60 weeks	✓ ✓ ✓	✗	✗	✓ ✓
Liveability at 72 weeks	✓ ✓ ✓	✓ ✓	✗	✓ ✓ ✓
Egg number at 72 weeks	✓ ✓ ✓ ✓	✗	✗	✓ ✓ ✓

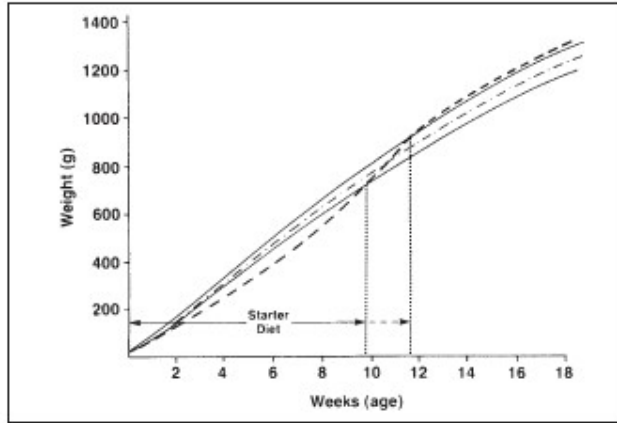
**Source : Peters, 1997**

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## Feeding Program Management

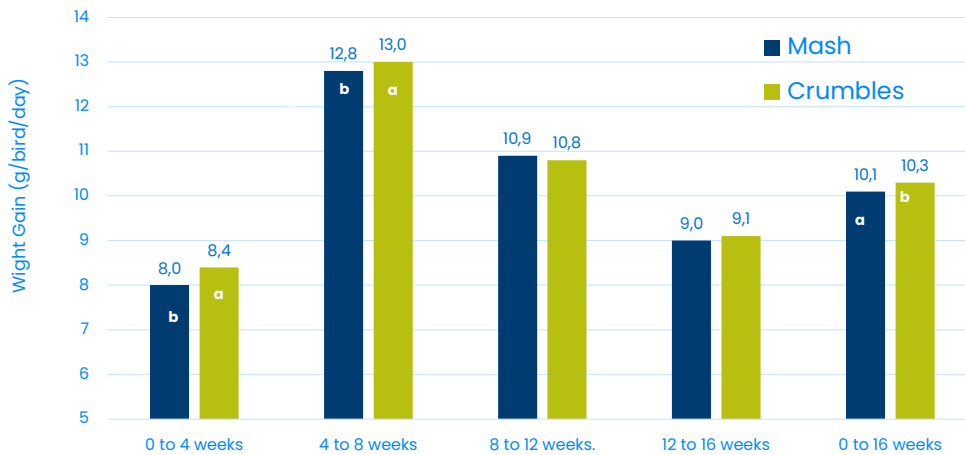
- Make phase changes based on weight, not age



Lorenzen and Summers, 2009, Commercial Poultry Nutrition (3rd ed.)

## Feed Texture and pullet growth

Influence of feed texture on pullets weight gain at 16 weeks old



Bazhurt et al., 2019



## Feeding program example

	Period in weeks	Feed Textures (ideal)	Crude Protein, %	Calcium, %
Starter	0 à 4-5	Crumbles (without dust)	20 à 22	0,7 à 1,0
Grower	4-5 à 8-10	Coarse Mash or Crumbles	17 à 18	0,7 à 1,0
Developer	8-10 à 14-15	Coarse Mash	14 à 16	0,6 à 0,9
Pre-lay/Conditioner	around 16	Coarse Mash	17 à 18	2,0 à 2,5
Pre-Peak/Hybrid	17 à 23	Coarse Mash	17 à 20	3,5 à 3,8



## Key Success Factors

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**Housing**

**Feeding**



**Management**

**Health**

**Water**



## Common problems and solutions

- Ensure good environmental conditions in the pullet barn

Gas	Target levels for air quality
Oxygen (O <sub>2</sub> )	>20%
Carbon dioxide (CO <sub>2</sub> )	< 0.3% or <3000 ppm Ideal: <0.2% or <2000 ppm (for optimal growth)
Carbon Monoxide(CO)	< 5 ppm
Ammonia (NH <sub>3</sub> )	< 20 ppm
Hydrogen sulfide (H <sub>2</sub> S)	< 5 ppm

## If pullets are under the target body weight...

- Check for stressors that may reduce feed consumption
- Feed distribution (Check feed levels in every feeders on the alleys and returns)
- Increase number of meals per day to stimulate feed intake
- Feeding hours -> 'stack feeding' (2 meals closed together)
- Train pullets to eat regularly
- Make feed changes according to the birds needs, not its age
- Weigh pullets before changing feed type and/or texture
- Vaccination (stressor) – avoid making feed changes simultaneously
- Quality of beak treatment – feed quantity in the feeder

## If pullets are under the target body weight...

Solutions:

- Give a higher density feed
- Give a crumble feed if feed intake is critical
- Keep the same feed until the target body weight is reached
- Delay photostimulation, if necessary
- Night feed during the development stage, if equipments, housing and staff allows it
  - For conventional cages and enriched housing

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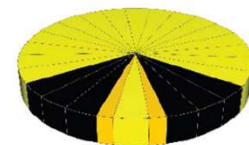
## Feeding for underweight pullets – Development Stage

- Use of the “Midnight feeding” method
  - to maintain pullet growth, particularly during periods of heat
  - Supplemental tool – requires strict monitoring

Important notes:

- Do not exceed 1 hour of light per night
- Ensure sufficient periods of darkness before and after light hours

This figure is for layers not pullets  
Pullets – increase # of hours of dark before  
and after midnight feeding



Hy-Line International

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## Key Success Factors

**Animal**

**Housing**

**Feeding**



**Management**

**Health**

**Water**

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## Health

- Gut Health
  - Good gizzard development
  - Good development of intestinal villi
  - Good quality of droppings/litter
- Good Vaccination program
  - (eg. Laryngotracheitis, smallpox, bronchitis) -> talk to your veterinarian
- Good body composition of the pullets
  - Good bone structure
  - No excess fat



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## Key Success Factors

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## Water

- Water Quality (bacteriological & chemical)
- Water quantity
  - Pressure
  - Number of drinkers/nipples
  - Access to drinkers



## Conclusion

- Age at maturity has decreased => early maturity
- Achieving weight-for-age goals more difficult
- Modern pullets weigh less and eat less
- Slightly heavier bird lead to better egg production & persistency
- Flock uniformity is crucial at every stage => close & rigorous monitoring
- The feeding program should be adjusted according to the pullets' body weight, not their age.
- Pullets must have an ideal body composition at all production stages

<https://www.japfacomfeed.co.id/en/product-and-services/product->

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# Questions?

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