

## Longer Flock Cycles:

Exploring a new path to sustainable egg production in Canada



Nella Batres

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## AFNS 500:

### *Project Purpose*

- In-depth understanding of what it takes to pursue longer flock cycles
- Curate case studies of producers who are trying longer flock cycles

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**Defining longer flock cycles**



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**Defining longer flock cycles**

|               | Flock Cycle Length* (weeks) |
|---------------|-----------------------------|
| Latin America | 95 - 100                    |
| Europe        | 85 - 100                    |
| U.S.A         | 80 - 90                     |
| Canada        | 73 - 83**                   |

\*Without molting  
 \*\* Sometimes longer due to breeder and pullet flock scheduling issues.

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**Canadian Regulations**

- Flock cycle lengths vary from province to province
- Examples:
  - Alberta = 52 week production cycle
  - Ontario = 51 week production cycle



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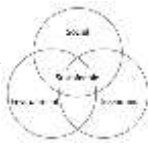
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# Sustainability

How do we meet society's current food needs without compromising future generations?

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## Sustainability Benefits

### Economic

- ↑ Profit /per bird
- ↑ large & extra large eggs
- ↓ Demand for hens
- ↓ Pullet Cost Price

### Environmental

- Efficient use of resources
- Lower carbon footprint/egg

### Social

- Environmental benefits support
- Longer hen lifespan
- ↓ Killing of male day old chicks

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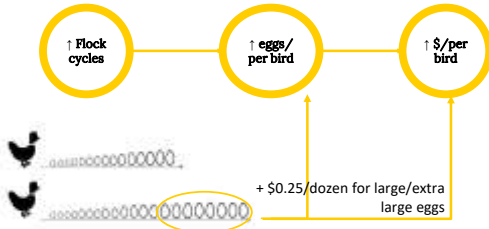
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## Economic Benefits ↑ Profit /per bird



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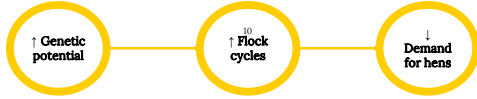
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Economic Benefits | Demand for hens



Increase in 25 eggs per hen may lead to a decrease in 2.4 million hens in the UK. (Bain et al., 2016)

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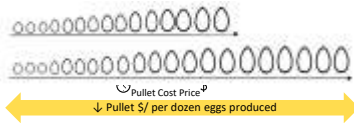
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Economic Benefits | Pullet Cost Price



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Sustainability Benefits

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| <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>● ↑ Profit /per bird</li> <li>● ↑ large &amp; extra large eggs</li> <li>● ↓ Demand for hens</li> <li>● ↓ Pullet Cost Price</li> </ul> | <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>● Efficient use of resources</li> <li>● Lower carbon footprint/egg</li> </ul> | <p><b>Social</b></p> <ul style="list-style-type: none"> <li>● Environmental benefits support</li> <li>● Longer hen lifespan</li> <li>● ↓ Killing of male day old chicks</li> </ul> |
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**Environmental Benefits**

- Less hatchery and processing energy
- Less rearing and brooding
- Less nitrogenous waste
- Fewer vehicle movements
- Less cleaning & disinfection



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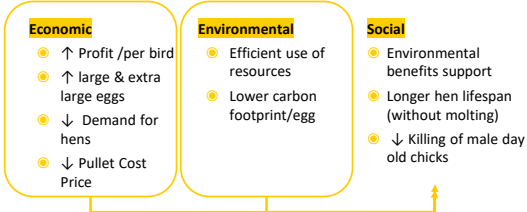
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**Sustainability Benefits**



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*"On most farms in Canada, one-year-old hens are taken to slaughter. As such, a hen's life span on-farm is much shorter than her natural life expectancy of 5-11 years."*



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Where is Canada with longer flock cycles?

A: Not common.

- Not due to a lack of knowledge
- Canada is already a world leader when it comes to management programs..

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On-Farm Food Safety Program

1. On farm inspections
2. Critical requirements
3. Record keeping
4. Continuous improvement
5. Farmer commitment



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Animal Care Program

- Based on latest research
- Developed by leading experts
- Assessed by CFIA



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# The Challenges

All Producers

Canadian Producers

Albertan Producers



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## Challenges: All Producers

Animal Welfare & Animal Health

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### Challenges affecting all producers

Animal Welfare

Animal Health

Severe Feather Pecking

Vaccine coverage

Bone Health

Biosecurity



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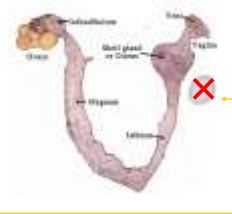
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**Challenges: Animal Welfare**

**Stress** & Longer Flock Cycles

Must manage the repercussions of stressful events for longer.

Stress + Eggshell formation  
= Unacceptable shell quality




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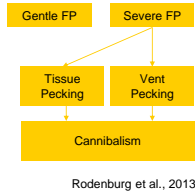
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**Challenges: Animal Welfare**

**Severe** Feather Pecking

- Primary welfare concern
- Gentle FP (normal) → Severe FP
  - Fear & stress sensitivity
  - Environment
- Housing
  - Increase risk in non-cage systems




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**Challenges: Animal Welfare**

**Severe** Feather Pecking & Longer Flock Cycles

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|---|--|---|
| <p><b>Issues</b></p> <ul style="list-style-type: none"> <li>● Extra management</li> <li>● Loss of social benefits</li> <li>● Loss of \$                     <ul style="list-style-type: none"> <li>○ ↓ Egg production</li> <li>○ ↑ Feed intake</li> </ul> </li> </ul> | <p><b>Prevention</b></p> <ul style="list-style-type: none"> <li>● Habituation to stress</li> <li>● Litter, roughage, pecking blocks, straw.</li> </ul> | <p><b>Management</b></p> <ul style="list-style-type: none"> <li>● Feeding higher salt</li> <li>● Vitamin E</li> <li>● Tryptophan</li> </ul> |
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🔗 Challenges: **Animal Welfare**

**Bone Health**

- Remodeling skeletal Ca reserves for longer
- Keel Bone Damage (KBD)
  - Deviations
  - Fractures




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🔗 Challenges: **Animal Welfare**

**KBD & Longer Flock Cycles**

- Problematic in cage-free systems
- KBD increase with age
  - (Rufener & Makagon 2020)
- Loss of \$
  - ↓ Egg Production
  - ↓ Shell Quality



| Deviations     | Fractures        |
|----------------|------------------|
| • Perch Use    | • Crash landings |
| • Perch Design | • Falls          |

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🔗 Challenges: **Animal Welfare**

**KBD & Longer Flock Cycles**

**Prevention**

- Training during rearing
- Ramps & Platforms
- Nutrition



| Deviations     | Fractures        |
|----------------|------------------|
| • Perch Use    | • Crash landings |
| • Perch Design | • Falls          |

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**Challenges affecting all producers**

**Animal Welfare**

Severe Feather Pecking

Bone Health



**Animal Health**

Vaccine coverage

Biosecurity



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**Challenges: Animal Health**

**Health & Longer Flock Cycles**

Must manage the repercussions of a disease challenge for longer.



- Feather pecking
- Keel bone damage
- Bronchitis
- Ecoli
- Newcastle Disease
- Reovirus
- Salmonella

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**Challenges: Animal Health**

**Vaccine Coverage & Longer Flock Cycles**

**Netherlands**

● Vaccinated during rearing only

● Why?

- Risk >> Payback
- Biosecurity
- (-) Productivity

**Latin America & the Asia Pacific**

● Boosters required

● Why?

- Open-siding housing
- Different disease pressures

**Prevention**

● Ongoing boosters (every 6 weeks)

● Strict biosecurity

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## Challenges: Canadian Producers

Pullet Rearer Market, Processing Industry & Supply Management

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### Challenges affecting Canadian producers

#### Pullet Rearer Market

Pullet Scheduling  
&  
Flexibility



#### Processing Industry

Availability  
& Cleaning



#### Supply Management

Competition  
&  
Entrepreneurship



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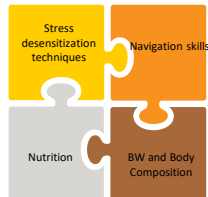
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### Challenges: Pullet Rearer Market

#### Investing in the Pullet

Successfully producing high quality eggs starts with the pullet



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**Challenges: Pullet Rearer Market**

How do producers stay **informed?**

**Latin America & U.S.A**

- Large vertically integrated companies

**Netherlands**

- Visit pullets multiple times
- Remote access to pullet barn computer

**Belgium**

- Request certain feeds
- Organize their own pullet rearing

There is a considerable focus on investing in the rearing period.

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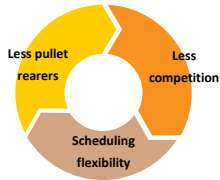
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**Challenges: Pullet Rearer Market**

The Canadian Challenge: **Inflexible pullet market**




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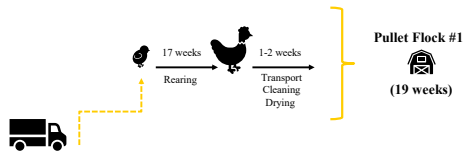
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**Challenges: Pullet Rearer Market**

The Canadian Challenge: **Inflexible pullet market**




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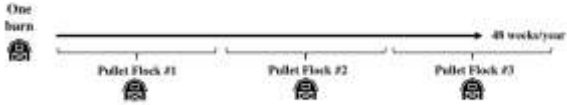
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🚩 Challenges: **Pullet Rearer Market**

The Canadian Challenge: **Inflexible pullet market**




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🚩 Challenges: **Pullet Rearer Market**

The Canadian Challenge: **Inflexible pullet market**

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| <p><b>Netherlands/Belgium</b></p> <ul style="list-style-type: none"> <li>● Min. of 5 months notice</li> <li>● Lots of breed choices</li> </ul> | <p><b>Western Canada</b></p> <ul style="list-style-type: none"> <li>● Best Case Scenario           <ul style="list-style-type: none"> <li>○ Min. of 8 months notice</li> </ul> </li> <li>● Worse Case Scenario           <ul style="list-style-type: none"> <li>○ 1-2 years to see changes</li> </ul> </li> </ul> |
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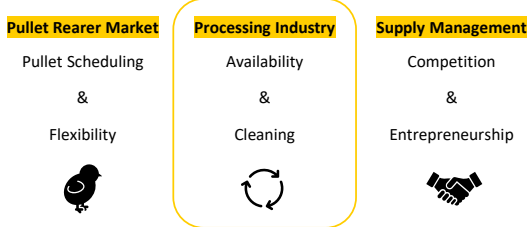
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🚩 Challenges affecting Canadian producers




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Challenges: **Processing Industry**

**Shell and Egg Quality**

- Increased egg weight → thinner shell
- Reduced internal egg quality with age




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Challenges: **Processing Industry**

**Shell and Egg Quality**

Can you sell an egg from an **80 week old hen** to a restaurant?

A: Yes, genetics has made it possible

**Netherlands**  
Still looks and tastes good

**Costco**  
Some eggs still go to Costco at 80 weeks

**Belgium**  
Boiling eggs – then maybe yes?  
Internal quality is still good

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Challenges: **Processing Industry**

**Shell and Egg Quality**

Can you sell an egg from an **80 week old hen** to a restaurant?

A: Yes, genetics has made it possible

**Canadian Advantage?**  
Haugh units are much more stable (with age) under refrigeration.




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**Flemish study (2016)**

|                 | 60 weeks | End of Production (~80 weeks) | Weekly Change | Acceptable for a consumer egg? |
|-----------------|----------|-------------------------------|---------------|--------------------------------|
| Egg weight      | 63.9     | 65.2                          | (+)0.07g      |                                |
| Haugh Units     | 79.5     | 71.7                          | (-)0.38       |                                |
| Shell Thickness | 408.8 µm | 404.2 µm                      | (-) 0.23 µm   |                                |

Conclusion: Egg quality was still acceptable for consumers at the end of lay

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**Challenges: Processing Industry**

**Shell and Egg Quality**

Genetic Companies P.O.V

- Goal:
  - 1st Quality Eggs towards the end of production
  - Sole focus **was not** total egg numbers per hen housed




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**Challenges: Processing Industry**

**Shell and Egg Quality Strategies**

**Netherlands**

- Eggs from younger flocks = ↑\$
  - Supermarkets
  - Food service
- Eggs from older flock = ↓\$
  - Other markets



**Belgium**

- Food service eggs
  - Exclusively from caged white hens

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🚀 Challenges: **Processing Industry**

**Shell and Egg** Quality Strategies

**U.S.A**

- Blending of flocks
  - Flock A ( 50 weeks) + Flock B (72 weeks)
  - Poor quality eggs are 'diluted'




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🚀 Challenges: **Processing Industry**

Greater processor **flexibility**

- Larger processing industry
- Larger market for processed eggs

**Netherlands**

- Germany, Belgium, Switzerland
- Export 60% of eggs
- Multinational companies




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🚀 Challenges: **Processing Industry**

The Canadian Challenge: **Availability**

- Limited options for processing
  - Only one breaking facilities in Alberta
  - Market for processed eggs is much smaller



What will we do with an increase in Grade B and C eggs?

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**Challenges: Processing Industry**

The Canadian Challenge: **Cleaning**

**Latin America/U.S.A./ Europe**

- Further processing does not require cleaning eggs



**Canada**

- Cleaning is required
- More possible impact points




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**Challenges affecting Canadian producers**

**Pullet Rearer Market**

Pullet Scheduling  
&  
Flexibility



**Processing Industry**

Availability  
&  
Cleaning



**Supply Management**

Competition  
&  
Entrepreneurship



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**Challenges: Supply Management**

Supply management is a very clunky system...  
The more certainty, the better...

- Breeder flocks
- Pullet flocks
- Flock cycle regulations (i.e. Home Week)




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**Challenges: Supply Management**

**Less Competition**

- Less competition means less flexibility  
(i.e., pullet grower & access to processing markets/facilities)

**Less innovation**

- Guaranteed income for producers
- Little incentive to pursue risks

Optimizing production ≠ Maximizing production

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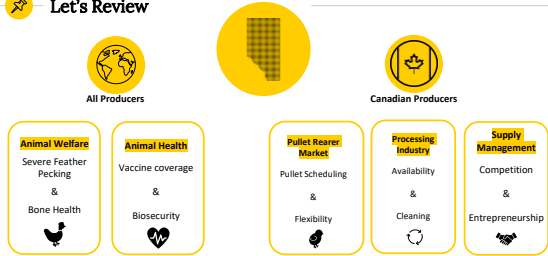
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**Let's Review**



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**AFNS 500:**

**Project Purpose**

- In-depth understanding of what it takes to pursue longer flock cycles
- Curate case studies of producers who are trying longer flock cycles

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Case Studies



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Case Study #1:

Who & Where?

- Dutch Producer
- Almkerk, Netherlands



*"There is more attention given to laying hens in the Netherlands when it comes to animal welfare. We went with layers because it was most in line with how we think animals should be treated"*

**What?**  
Table Egg Producer  
Lohman Brown Classic  
LSL-Lite White Layers

**Experience**  
5<sup>th</sup> generation farmer  
10 years experience with longer flock cycles

**Flock Factors**  
Flock Size: ~25,000 birds  
Housing: Aviary & free-run  
Certifications: Better Life Label (1 star & 2 star)

**Flock Cycle Length**  
90 weeks

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Case Study #1:

Sustainability Motivations



**Efficient use of resources**

- Demand for sustainable practices
- NGO's, retailers & consumers

**Animal Welfare**

- Highly invested in bird well-being via Better Life Label Certification

**Innovation**  
If it is possible, then "Why Not?"

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Case Study #1:

Management Challenges



Floor eggs

- Prevention is a must.
- Training birds in the system

Strategies : training, lights



Injurious pecking

- Beak trimming is banned
- Most producers don't struggle, but it is still a challenge

Strategies: litter, pecking blocks, feed additives, lights



Mortality

- Initially shocking
- Inevitable since you are keeping them longer

Strategy: Detail oriented management

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Case Study #2:

Who & Where?

- Hutterite Producer
- Montana



*"It is way more challenging... [especially] because of [our] organic system audits and our housing system, but these play a huge role in why we are able to keep these birds for so long"*



What?

Pullet Grower & Table Egg Producer

Lohmann Brown Classic



Experience

27 years of experience as the Poultry Manager



Flock Factors

Flock Size: 30, 000 birds  
Housing: Aviary & Free-run  
Certifications: 100% Organic



Flock Cycle Length

82 weeks

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Case Study #2:

Economic Motivations



Pullet Cost Price

- Large initial cost cut in 1/2



Cleaning, Disinfection & Disposal

- Every 1.5 years instead of every year



More large/extra large

- Restrictions on methionine use
- Easy access to breakers

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Case Study #2:

Management Challenges



**Bird Health**  
 • Interacting with natural environment makes it hard  
 Strategies: citric acid, vaccines

**Feather pecking/coverage**  
 • Brown birds are more aggressive  
 Strategies: beak trimming, salt, ventilation

**Shell quality**  
 • Inevitable decrease with age  
 Strategy: Blending flocks

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Case Study #3:

Who & Where?

- Ine Kempen
- Experimental Poultry Centre
- Geel, Belgium



*"We test and demonstrate theoretical knowledge under field circumstances. We focus on poultry industry's efficiency and economic sustainability next to solutions for public concerns on animal welfare."*

**What?**  
 Laying hens  
 Hendrix, Lohmann and Novogen breeds

**Experience**  
 EPC has been performing research on longer flock cycles for ~ 5 years

**Flock Factors**  
 Flock Capacity: ~31,000 birds  
 Housing:  
 • 8 aviary departments  
 • 4 furnished cages departments

**Flock Cycle Length**  
 >90 weeks

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Case Study #3:

Research Motivations



**Genetic Potential**  
 • Large marketing campaigns by Hendrix genetics made producers curious

**Exploring effect on 'cost price'**  
 • Exploring the potential savings for producers

**Egg quality**  
 • How does egg quality change with longer flocks on commercial farms?

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Case Study #3:

Industry Factors



Beak Trimming Trends

- Now producers are only going 5 to 10 weeks longer



Molting

- Still an attractive option for producers
- Depends on feed and egg prices (i.e. during Easter)

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# Thank You!

*Any questions?*

You can find me at

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- [www.linkedin.com/in/nella-dbatres](http://www.linkedin.com/in/nella-dbatres)

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