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# Overview of Alternative Production

## Cage Free Academy 05/2019

Maurice Raccoursier MV MSc

# Content

- Introduction.
- Alternative housing systems
- Alternative systems: rearing
- Alternative systems: production
- Conclusions

# Introduction

The laying industry under pressure from many angles:

1. Portray eggs as healthy and safe.
2. Pressure to keep egg price low (“cheap protein”)
3. Legislation mandating changes to hen housing
4. Customers demanding egg produced in certain ways.

Siegford, 2017



# Legislation Mandating Changes

- United States: 10 state laws do/will affect how hens are housed
- Canada: Phase out conventional (battery) cages by 2036
- European Union bans on battery cages 2012.

Siegford, 2017





# Customer demanding cage free

TO DATE

## Food service



2025



2020



2020



2025



2025



2026

## Food producers



Unilever

2020



Nestlé

2020



2020



GENERAL MILLS

2025



2025



2025

## Stores, dining services, producers



Cage free



MARRIOTT

2015



COMPASS GROUP

2020



TARGET

2025



No date



No date

The Trade Who Beat the Feds  
INVESTING Why Canadian Stocks Could Soar

Walmart

928

2025

5178 BALLINGER RD  
ROGER HOMAN  
#3014 0505 320#F0 5250H00 4 AUG18  
#BXBCBHG \*\*\*\*\*5-DIGIT 45822



# Share of Laying hens by housing system in the US top 10: 2017 vs 2018

- USDA figures showed 2018 10 mill cage-free hens
- United Egg Producers (UEP) want to meet the 2025 minimum of 225 million

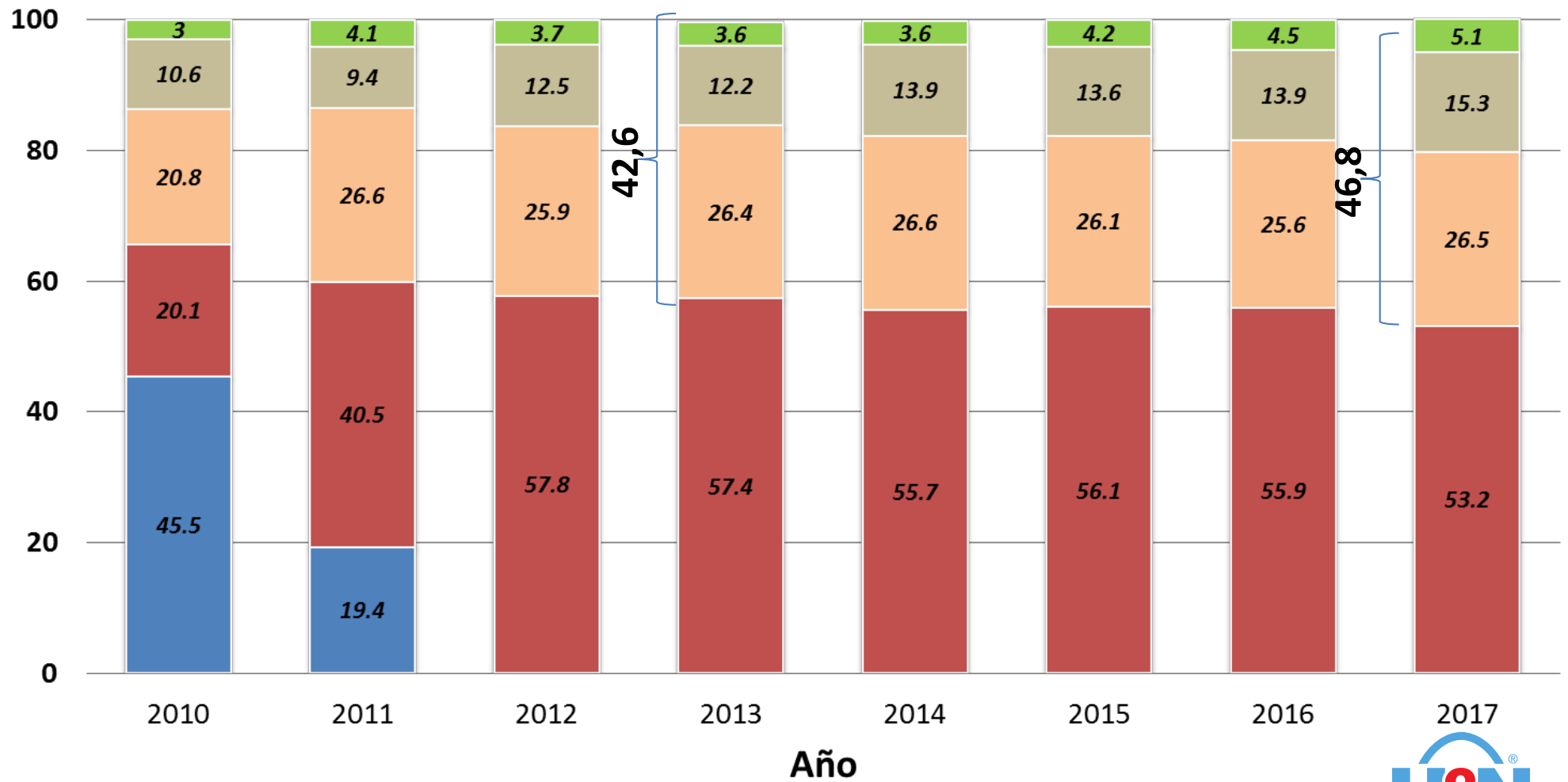
**5,6 times more or  
562%!**

USDA, 2018

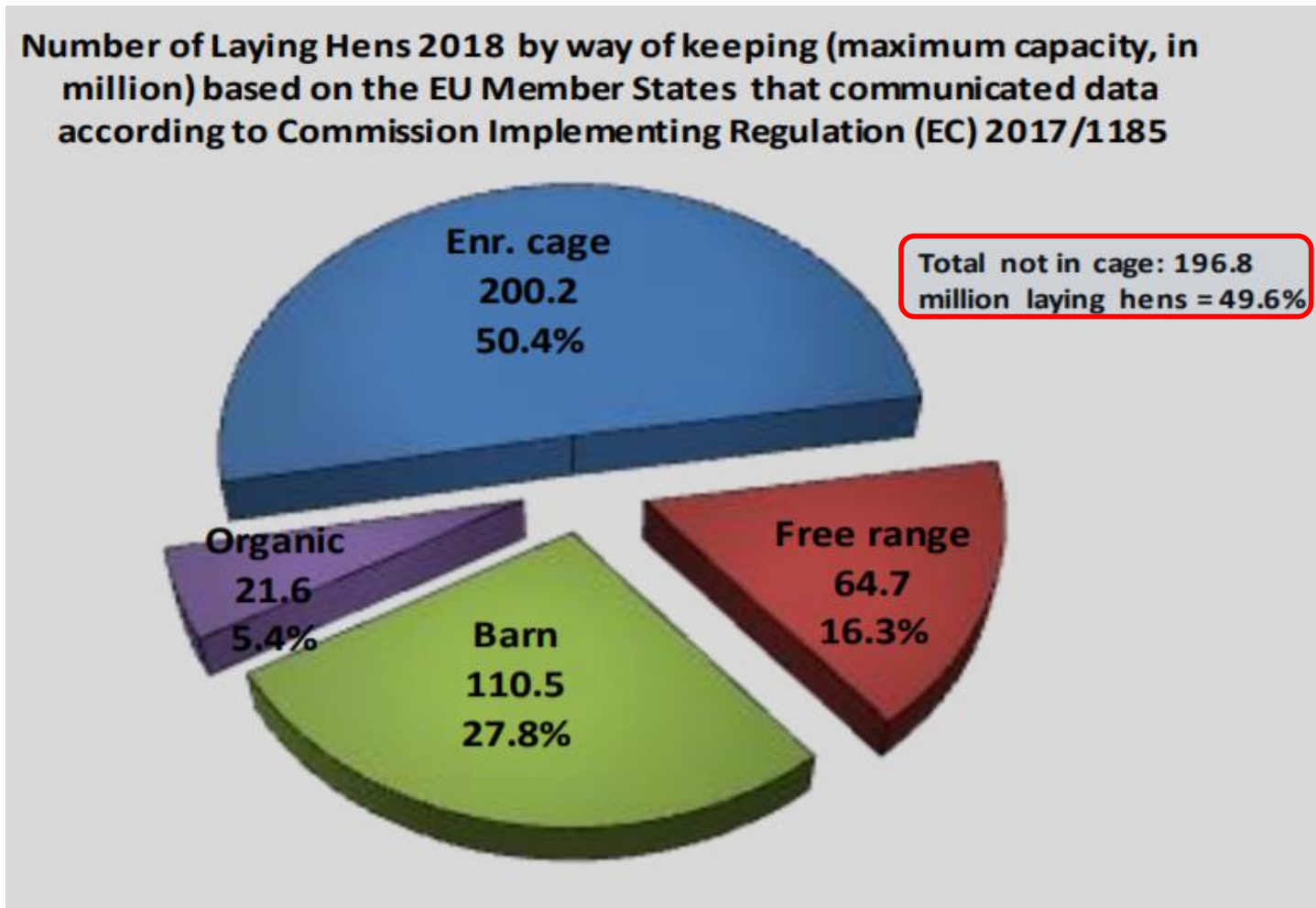


# Housing system in EU

■ Jaulas Conv. ■ Jaulas Enr. ■ Suelo ■ Camperas ■ Orgánico



# EU Members: Number of laying hens 2018 by housing method.



European Commission, Agriculture and Rural Development, 2019





**Number of laying hens by farming method (maximum capacity) according to Member States notifications under Commission Regulation 2017/1185, Art. 12(b) - Annex III.10**

Member State (MS)	2018		% by farming method in respective MS			
	Total laying hens in MS	% MS / EU	% enriched	% barn	% free range	% organic
DE	53 488 130	13.5%	6.5%	62.0%	19.5%	12.0%
PL	48 536 018	12.2%	84.5%	11.2%	3.6%	0.7%
UK	46 601 368	11.7%	35.2%	5.2%	56.9%	2.7%
FR	46 513 090	11.7%	60.8%	8.0%	21.3%	9.9%
ES	43 563 356	11.0%	82.3%	9.4%	7.4%	0.9%
NL	33 003 630	8.3%	16.1%	61.0%	16.0%	6.9%
IT	30 749 400	7.7%	56.4%	36.9%	2.9%	3.8%
BE	9 504 127	2.4%	39.5%	42.2%	13.1%	5.2%
PT	9 242 795	2.3%	90.1%	6.7%	2.6%	0.5%
RO	8 910 068	2.2%	62.0%	33.8%	3.3%	0.8%
SE	8 679 219	2.2%	9.2%	71.6%	3.1%	16.1%
HU	8 055 074	2.0%	70.4%	28.5%	0.8%	0.3%
AT	6 843 952	1.7%	0.8%	64.1%	23.5%	11.6%
CZ	6 600 835	1.7%	83.3%	15.7%	0.6%	0.4%
BG	4 985 283	1.3%	55.4%	41.1%	3.5%	0.0%
DK	4 867 997	1.2%	15.2%	45.7%	8.0%	31.1%
EL	4 549 458	1.1%	78.0%	12.2%	4.6%	5.2%
FI	4 219 525	1.1%	59.6%	30.5%	3.1%	6.7%
IE	3 601 813	0.9%	52.2%	1.1%	43.4%	3.3%
SK	3 230 532	0.8%	83.3%	15.6%	0.9%	0.2%
LT	2 982 521	0.8%	89.5%	9.9%	0.1%	0.5%
LV	2 860 470	0.7%	85.6%	11.7%	2.7%	0.1%
HR	1 943 512	0.5%	72.9%	24.6%	2.4%	0.1%
SI	1 525 408	0.4%	42.2%	39.1%	16.3%	2.4%
EE	960 849	0.2%	81.7%	8.1%	4.9%	5.3%
CY	497 129	0.1%	74.8%	14.1%	9.1%	1.9%
MT	344 680	0.1%	96.9%	3.1%	0.0%	0.0%
LU	114 200	0.0%	0.0%	79.0%	10.5%	10.5%
<b>TOTAL(28 MS)</b>	<b>396 974 439</b>	<b>100%</b>	<b>50.4%</b>	<b>27.8%</b>	<b>16.3%</b>	<b>5.4%</b>

# Summary

Pressure on Egg Industry

Changes to Laying Hen Housing

Impact on welfare, behavior, management and production

Siegford, 2017





# Alternative Systems - Main idea

- Fulfill natural behaviors

- Needs

- a) N Expectation to Improve
- b) P welfare and Positive Public
- c) F Opinion

- d) Explore

- e) Dust bathe

- More space



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# Alternative Housing Systems



# Alternative Housing Systems



# Barn

- Cage-free system
- Stocking density: max 9 birds/m<sup>2</sup>
- Min. Indoor space: 1.100 cm<sup>2</sup>/bird
- Min Outdoor space: No outdoor
- Small to large-scale

Example:

- Flat deck system
- Multi-tier system

Art. 4 of Directive 1999/74/EC.



# Barn – Flat and Multi-tier

## Feeders

- Linear feeders: 10 cm per hen
- Circular feeders: 4 cm per hen

## Drinkers:

- Troughs: 2,5 cm/bird
- Circular: 1 cm/bird
- Nipples: 10 birds/nipple

## Nests

- 7 hens/nest or 120 hens/mt<sup>2</sup> nest space (common nest).

## Perches

- 15 cm/hen

# Barn – Flat / one tier.

- **Litter:** In flat system, 250 cm<sup>2</sup> per hen (min: 1/3 of total ground surface)
- **Manure Pit or manure removal system**
- **Nests** are usually on the slatted floor and can be individual or group of hens
- **Perches:** A-frames on the slatted floor or suspended.

# Barn – Multi-tier

- Commonly Max. 4 tiers.
- Feeders and drinkers equal access.
- Height between levels min. 45 cm.
- System to avoid dropping feces on inferior levels.

# Barn











# Free Range

- Access to outdoor areas
- Stocking density: 2.500 birds/ha
- Min. Indoor space: 1,100 cm<sup>2</sup>/bird
- Min. Outdoor space: 4m<sup>2</sup>/bird
- Flock size: Small to large-scale

Examples:

- Multi-tier or Flat deck with outdoor access
- Fixed or Mobile sheds with outdoor access

Art. 4 of Directive 1999/74/EC and Annex II of Regulation (EC) No 589/2008.



# Free Range

- Pop-holes: width of 40cm by 35cm height with 2 m available per 1,000 hens.
- Almost continuous access to open air runs.
- Open-air runs must be mainly covered with vegetation.
- Open-air runs must not extend beyond a radius of 150m or 350m where appropriate shelters are provided (min 4 shelters/h).

# Free Range



# Covered verandas or winter gardens





# Organic

- Hens can freely roam in the outside areas
- Stocking density: 6 birds/m<sup>2</sup>
- Min. indoor space: 1,660 cm<sup>2</sup> (1850 cm<sup>2</sup>)
- Min. outdoor space: 4 m<sup>2</sup> (2,500 birds/h)
- Flock size: small-scale

## Examples

<sup>3</sup>/<sub>4</sub> Multi-tier or flat deck system.

<sup>3</sup>/<sub>4</sub> Fixed or Mobile sheds

Art. 4 of Directive 1999/74/EC and Annex II of Regulation (EC) No 589/2008.

# Organic

- 1/3 of the surface must be solid and covered with litter material.
- Neve exceed the manure production of 170 kg of Nitrogen/h (230 hens/h).
- Max. 3,000 hens per house.
- **Perches:** 18 cm/hen.
- **Pop-holes:** Length of 4 m/1000 hens.
- Organic from 3 days of age.
- **Special feed**
- **Special Rules for Treatments**

# Summary

Housing type	Production System		
	Barn	Free-Range	Organic
Single (flat deck)/ Multi-tier	X		
Single (flat deck)/ Multi-tier with outdoor access	X	X	X
Combination	X		
Mobile Sheds		X	X



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# Alternative Housing: Rearing



# Rearing systems

- Floor system
- Winchable elements system
- Block system
- Combi system

# Floor Systems

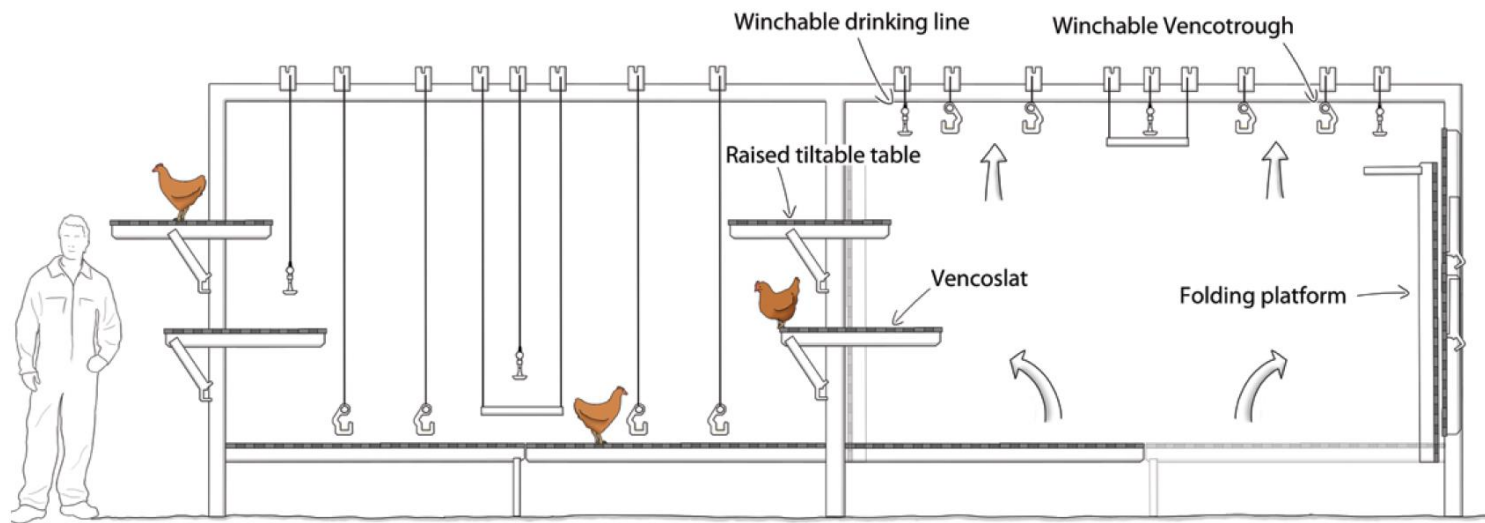


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# Winchable Element System

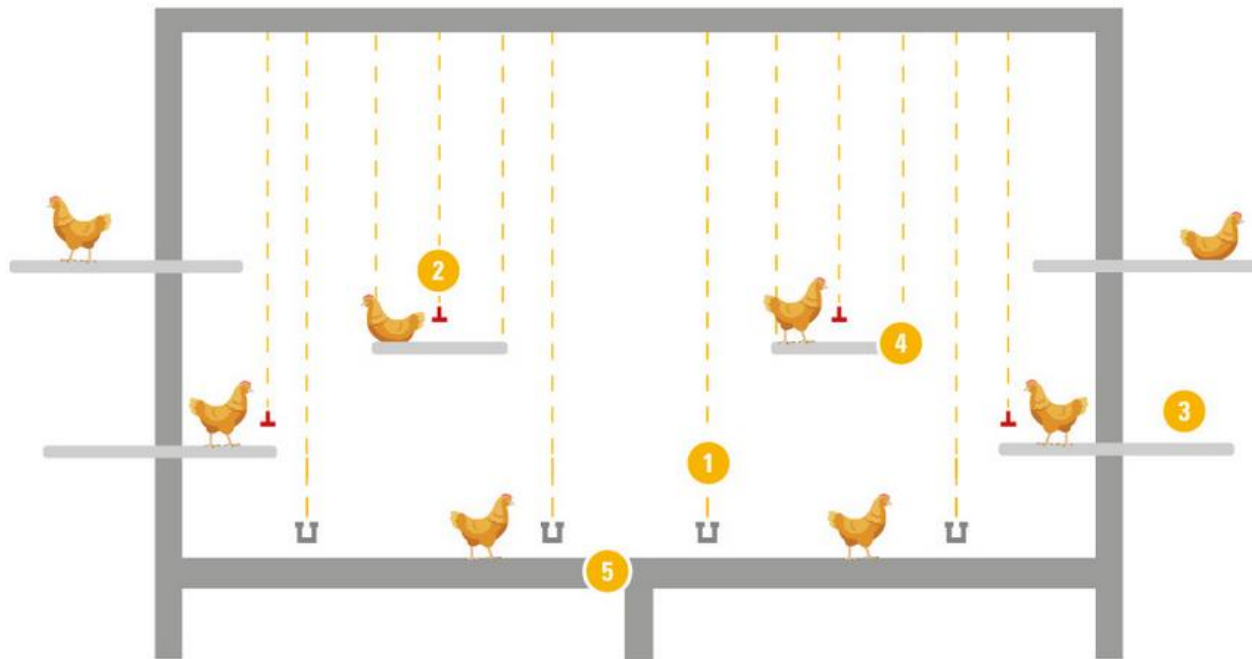
- Jumpstart (Vencomatic)
- NivoVaria (Jansen)

# Jumpstart



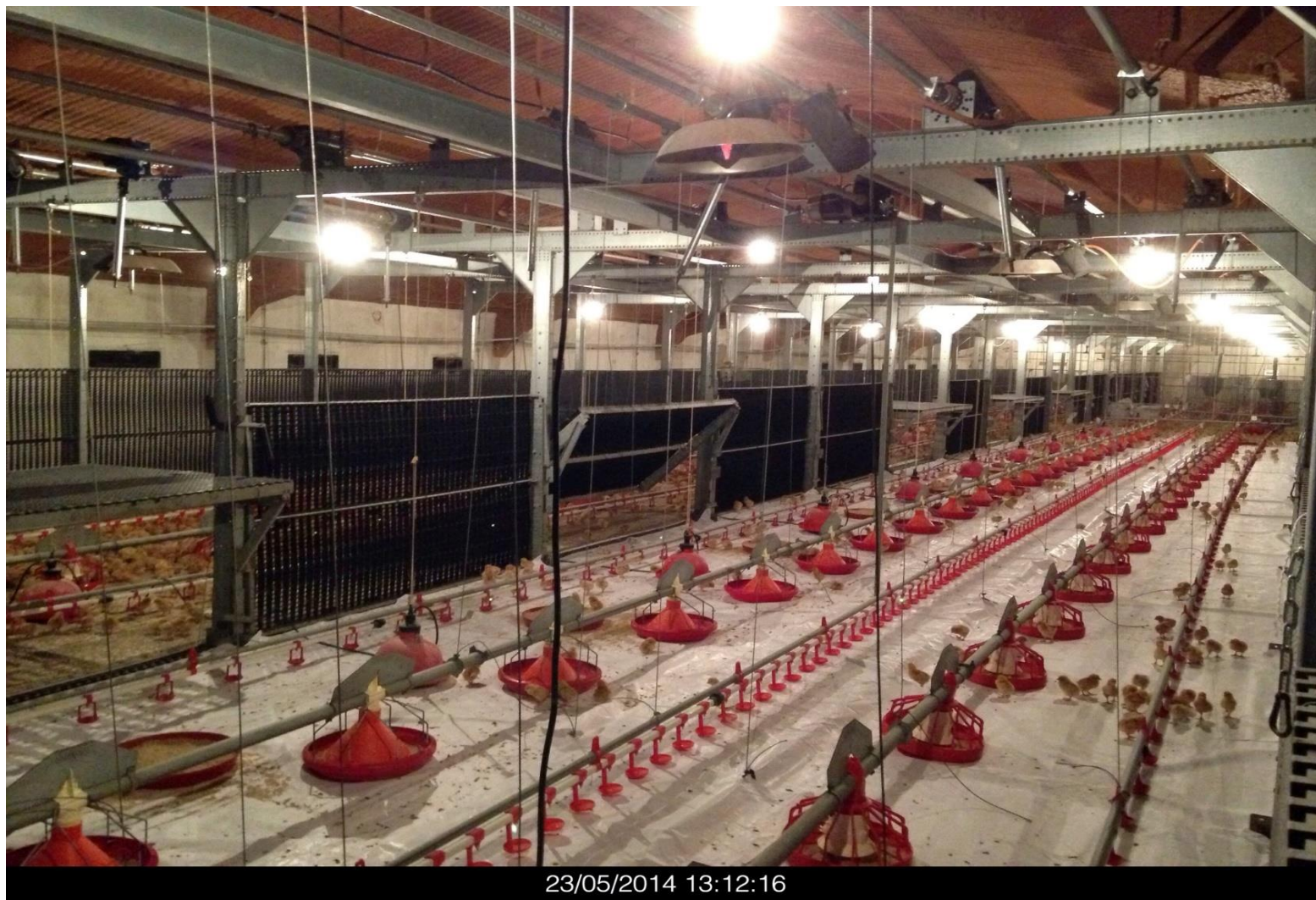


# NivoVaria



- 1 Feed system
- 2 Drinking lines
- 3 Fold away platforms
- 4 Winchable platforms
- 5 Central slatted area





23/05/2014 13:12:16













**JANSEN**  
Poultry Equipment



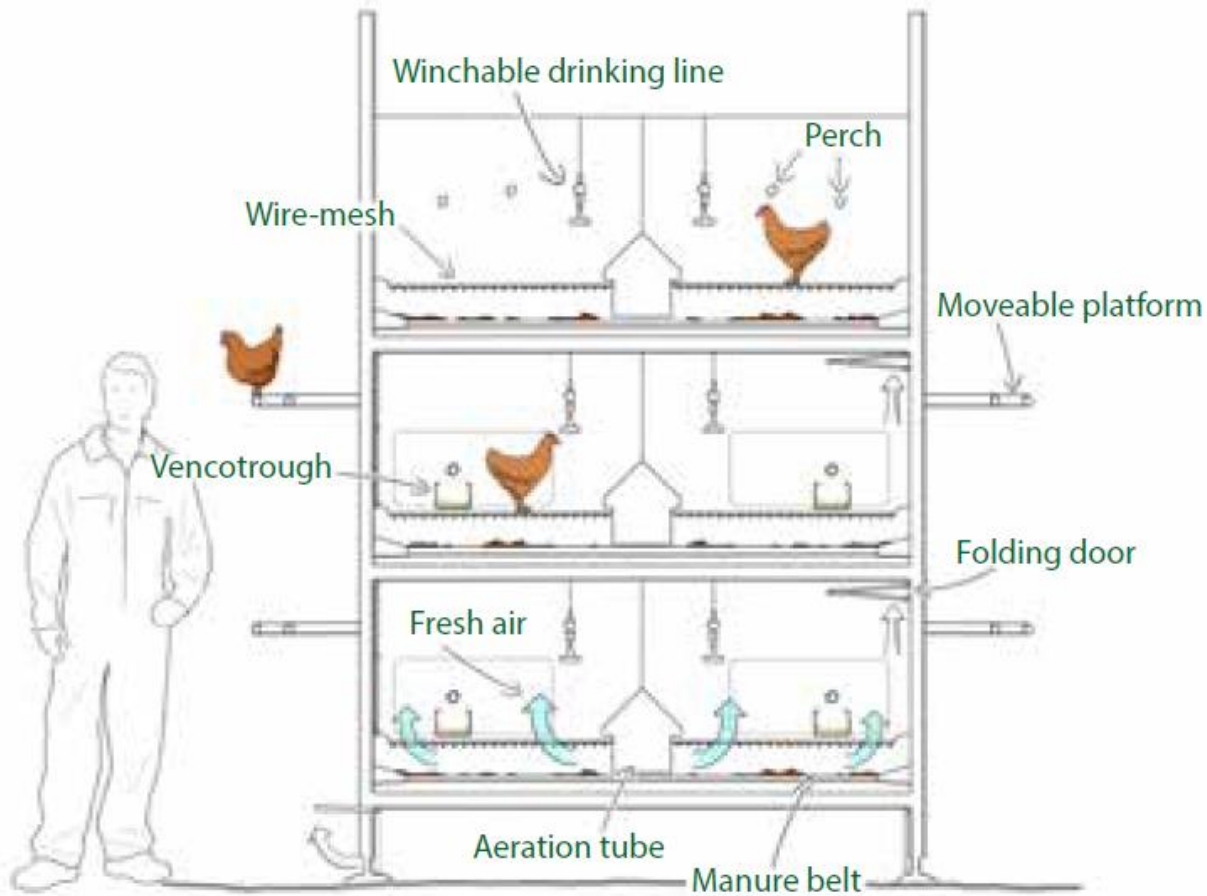




# Block (vertical) System

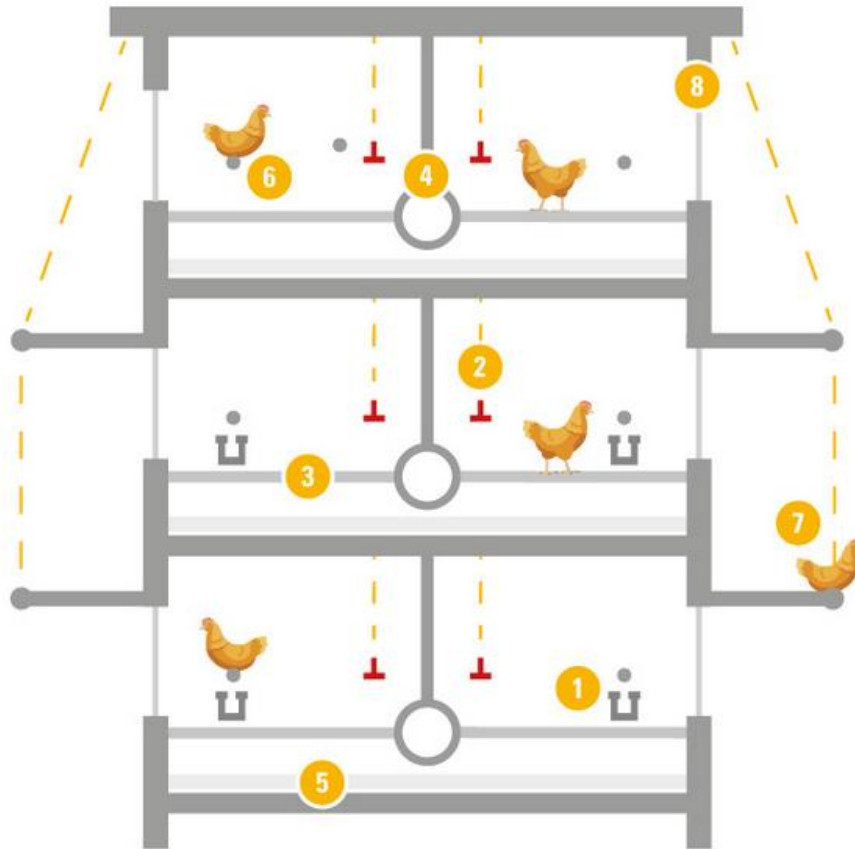
- Unistart (Vencomatic)
- RearMaxx (Jansen)
- Natura Primus (Big Dutchman)
- Libera Pullets (Facco)
- Volution (Choretime)
- Aviary Pro Pullet (Hellman)

# Unistart





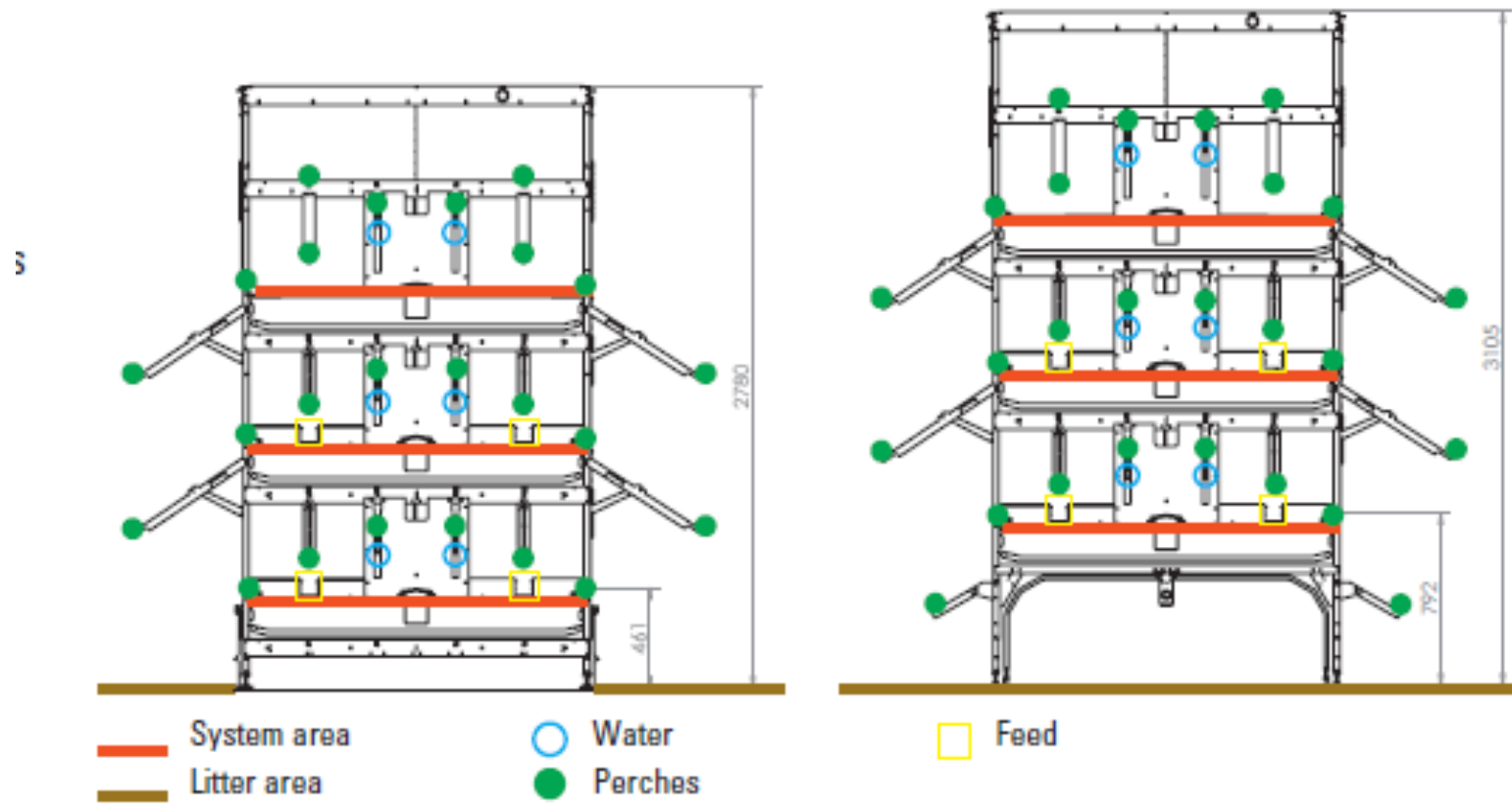
# RearMaxx



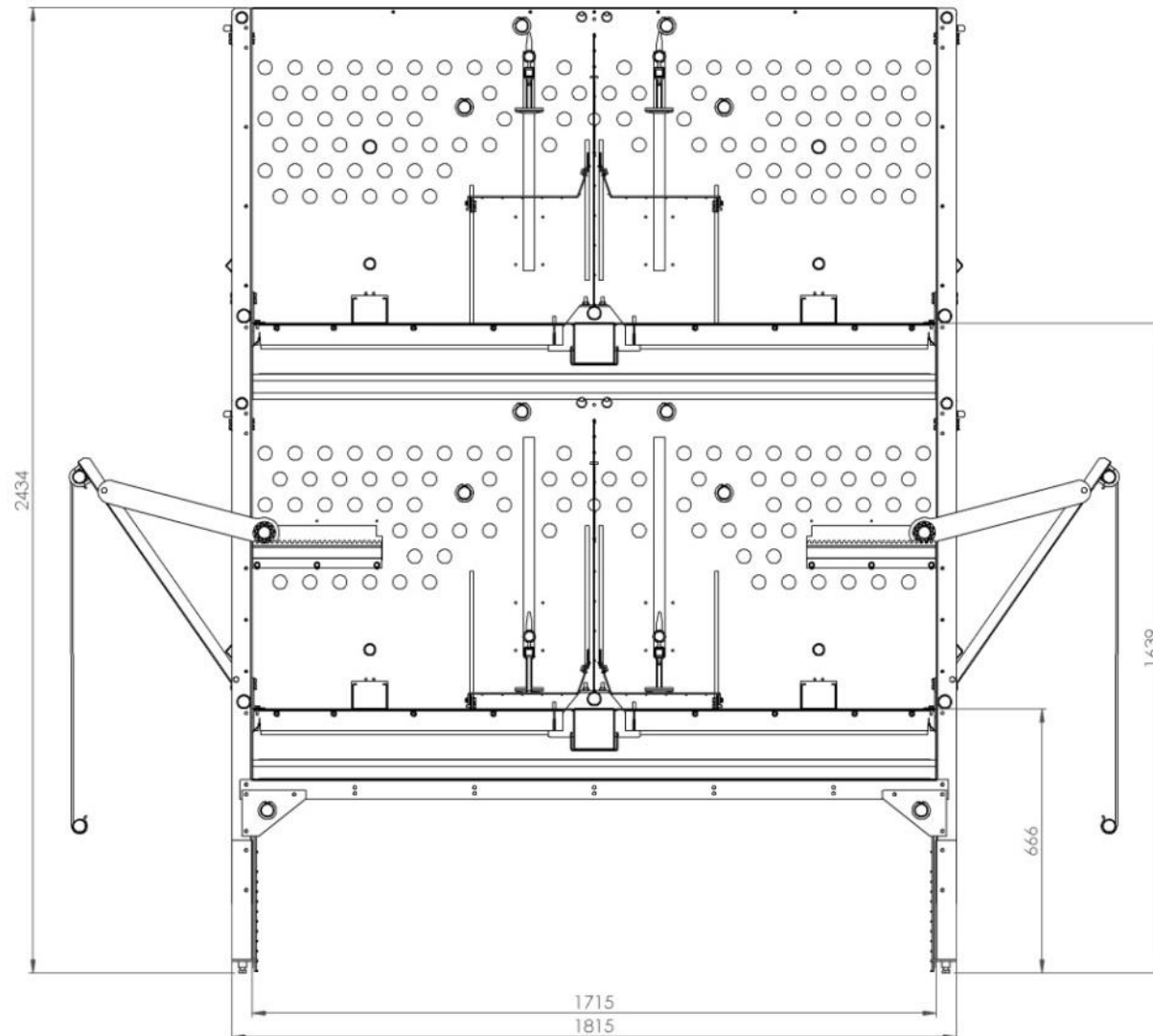
- 1 Feed system
- 2 Drinking lines
- 3 Slats
- 4 Air tubes
- 5 Manure belts
- 6 Perches
- 7 Winchable perches
- 8 Wire mesh fold away doors



# Natura Primus



# Volution













  
JANSEN  
Poultry Equipment

  
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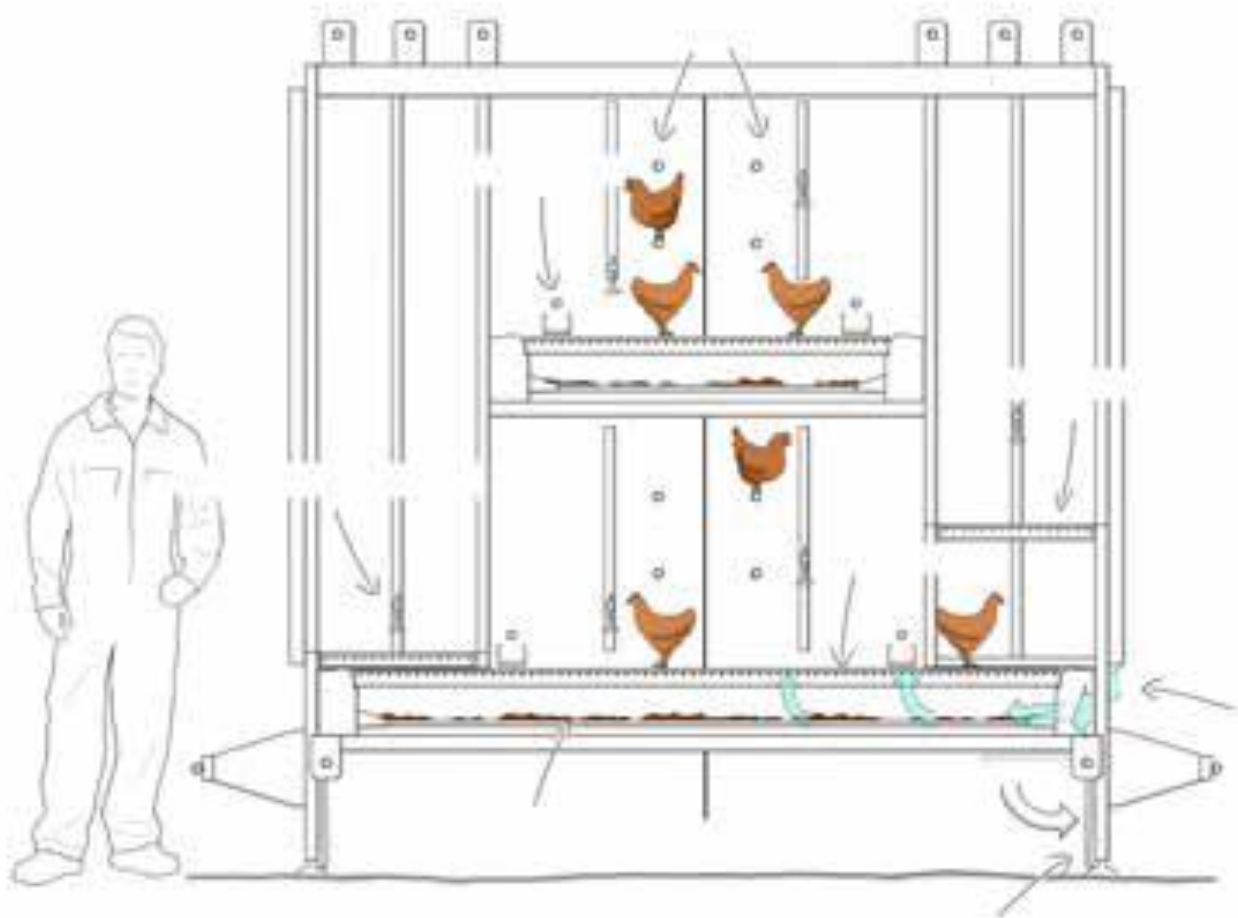


# Combi System

- Bolegg Starter (Vencomatic)
- Natura Filia (Big Dutchman)



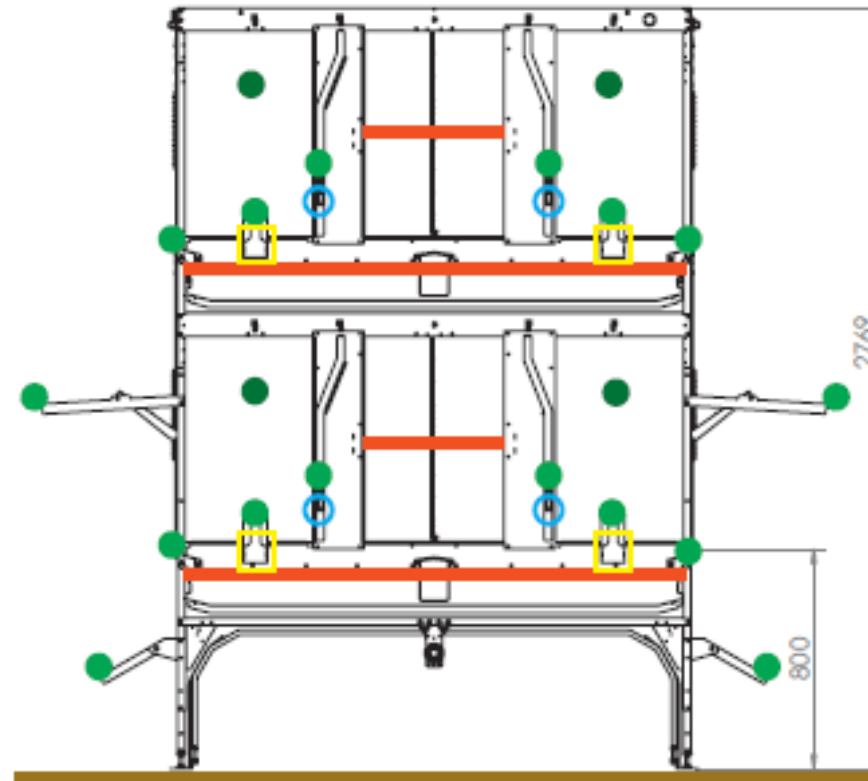
# Bolegg Starter



# Natura Filia



Big Dutchman®



- System area
- Litter area
- Feed
- Water
- Perches
- Additional perches



# Advantage of winched systems

- Better supervision.
- Faster start with training and all pullets will be trained
- Easier to clean
- Very suitable for rearing brown pullets.



# Disadvantage of winched systems

- Lower stocking density
- Higher feed consumption.
- Catching pullets for vaccination and transfer is more difficult (specially white ones).
- Risk of pilling.
- Selection of pullets is more difficult.

# Advantage Aviary Systems

- First week birds are at eye level.
- Manure belts are present.
- Pullets learn fast how to use perches.
- Easier to separate flocks with different breeders or vaccination programs.
- Catching for vaccinations or transfer is easier

# Disadvantage of Aviary systems

- Overview of the pullets
- Remove manure before catching pullets.
- More attention and labor when pullets start to use the free range area.
- Rearing brown pullets require an extra platform for water training.



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# Alternative Systems: Production



# Production Systems

- Traditional System (floor)
- Combi System
- Aviary System



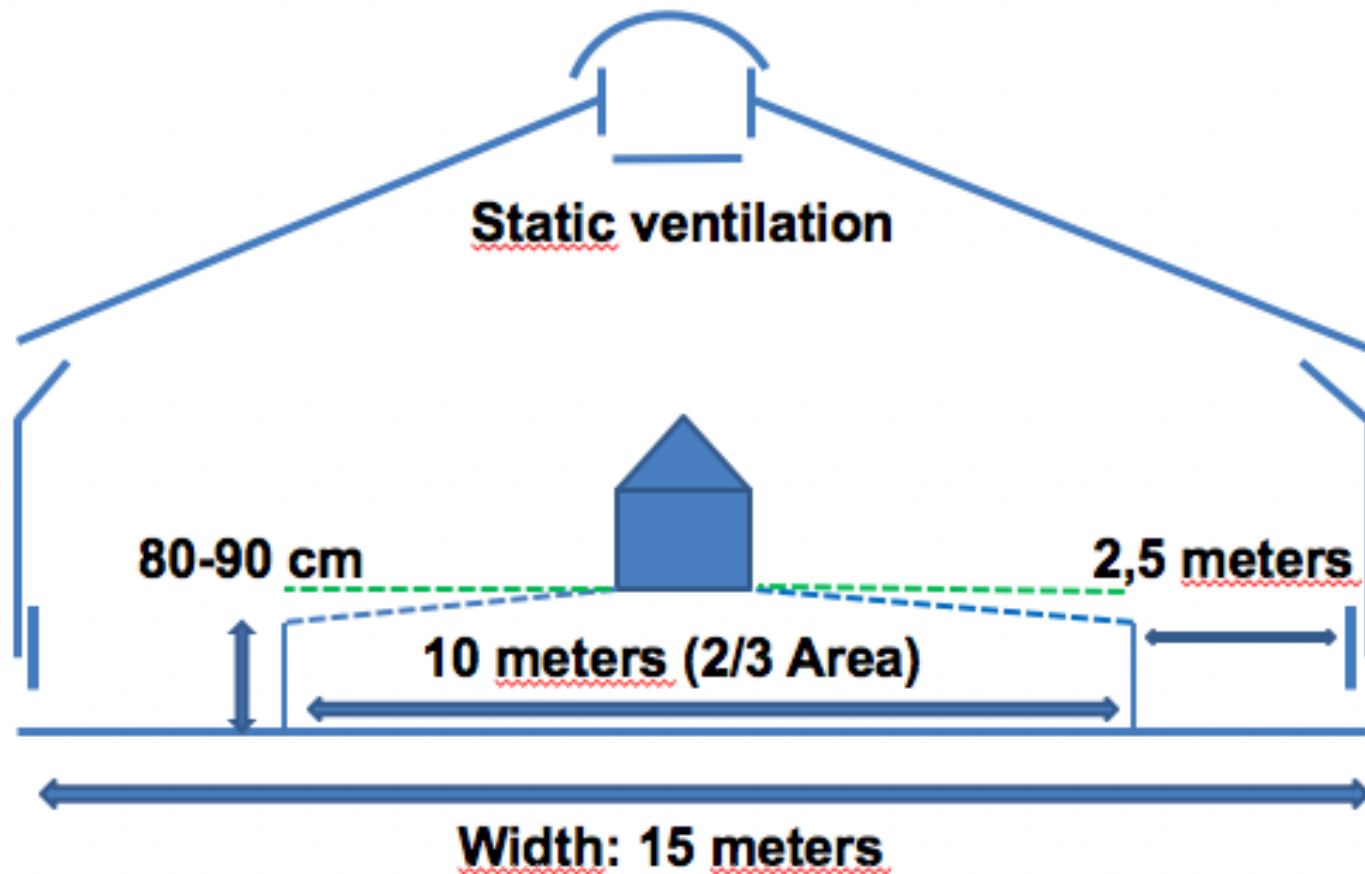
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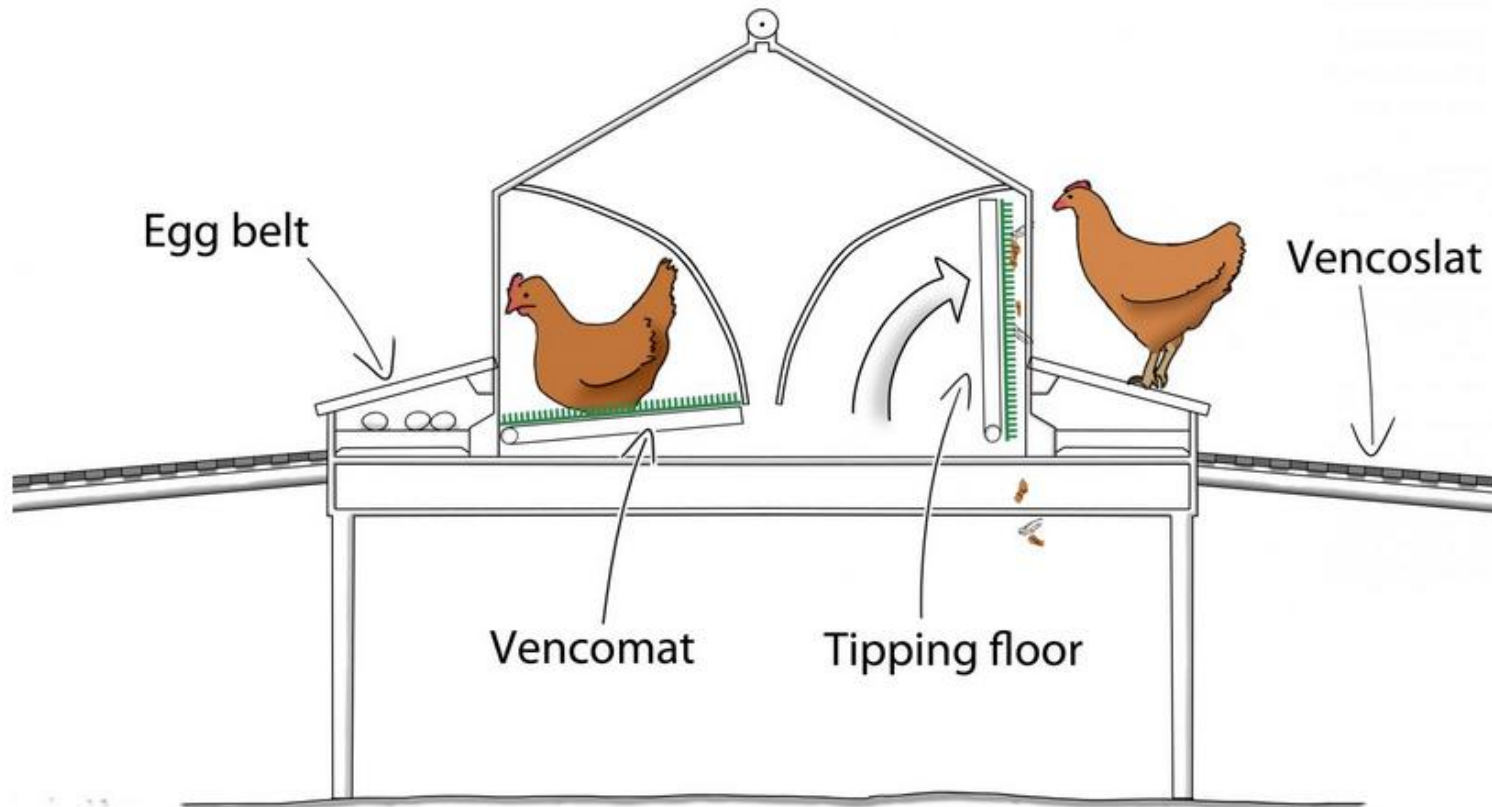
**Traditional system**

# Traditional (floor) System





# Nest



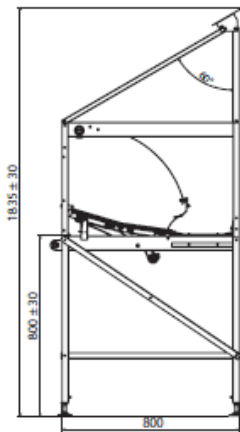
# Nest



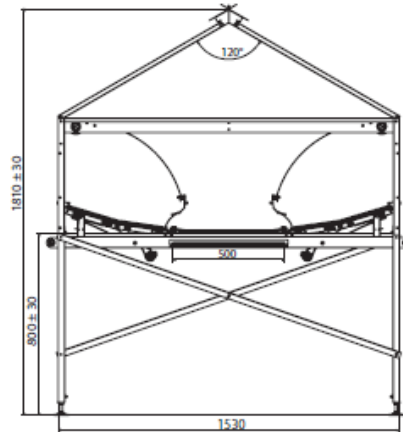
Big Dutchman®

## Nest cross sections and dimensions

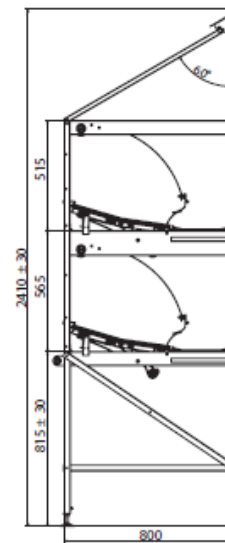
Single-tier wall nest



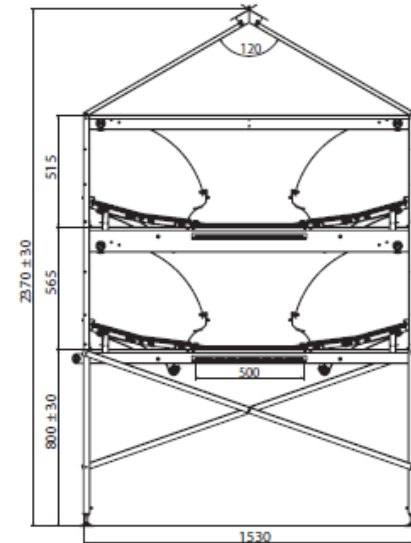
Single-tier double nest



Two-tier wall nest



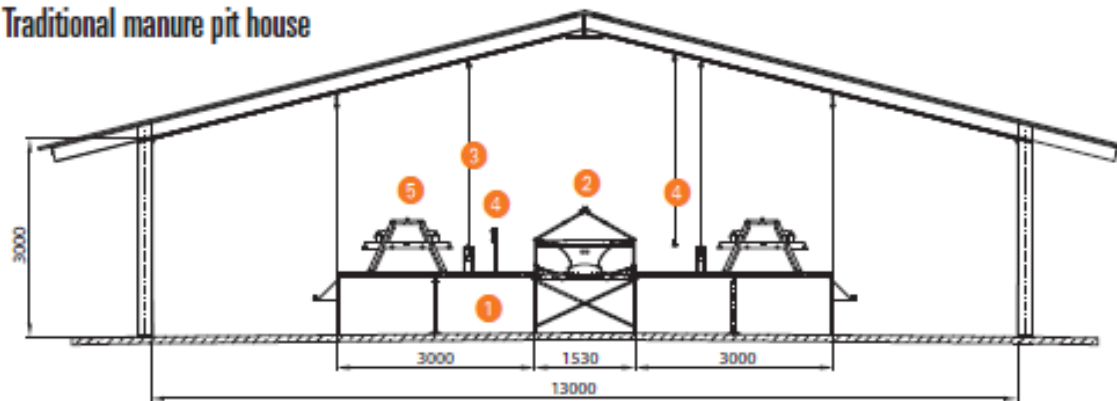
Two-tier double nest



# Traditional Manure pit house



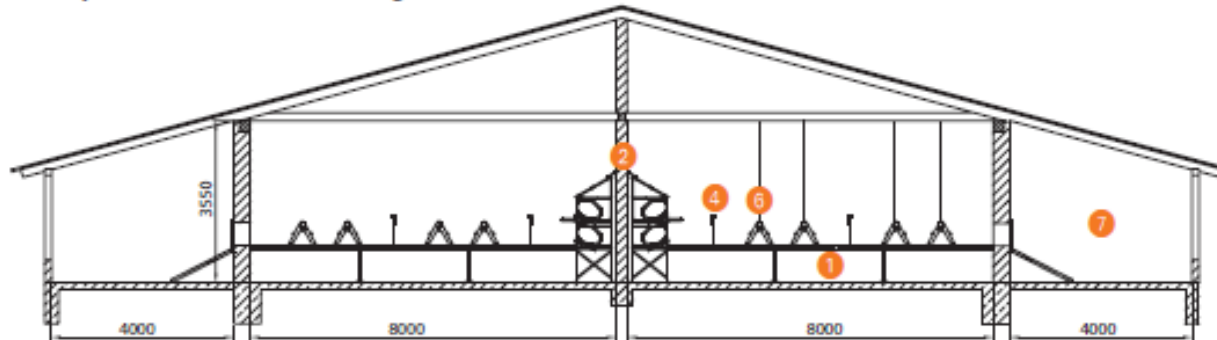
Traditional manure pit house



## Key

- ① Manure pit with plastic slats
- ② Colony 2+ group laying nest as double or wall nest
- ③ Trough with feed chain, standing and/or suspended
- ④ Nipple drinkers, standing and/or suspended
- ⑤ A-frame 5800 with feed and/or drinker line and up to 8 perches
- ⑥ A-frame 3000 liftable with feed line and 3 perches
- ⑦ Winter garden

Fully-slatted house with winter garden as litter area



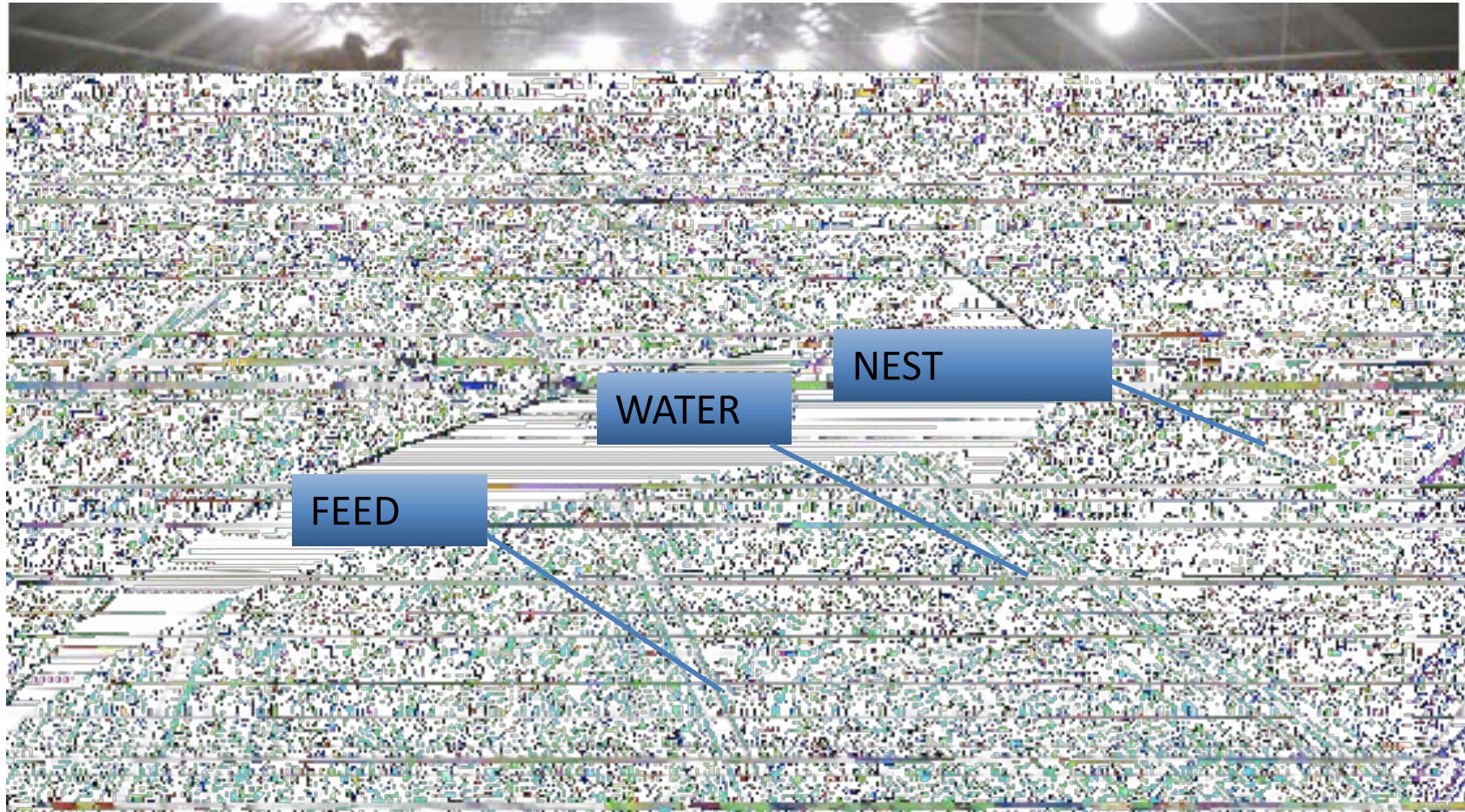




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# Aviary Systems



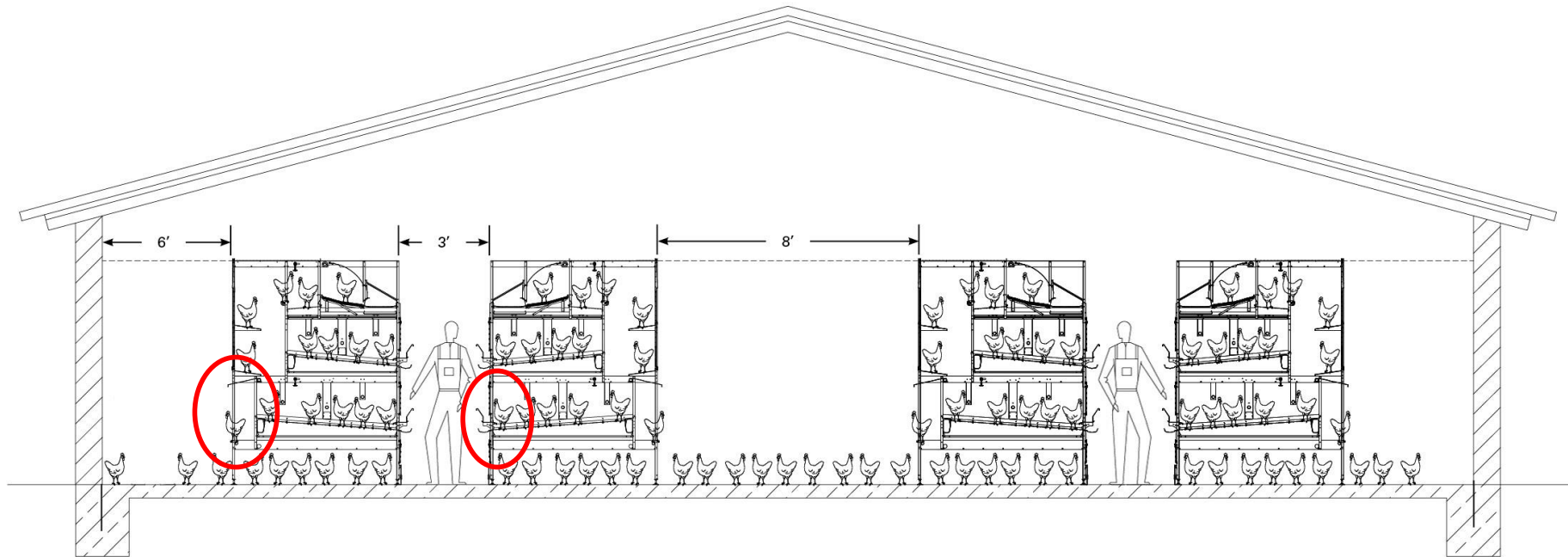
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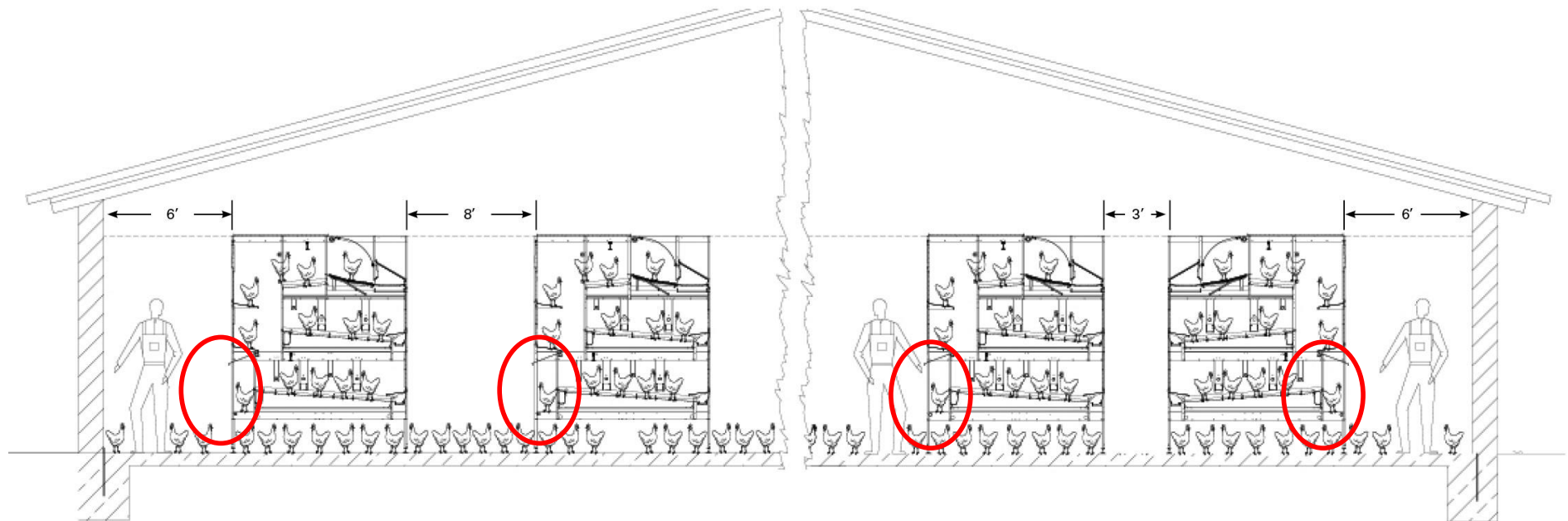
**Aviary with confinement**

# Confinement with inspection aisles





# Confinement without inspection aisles



# Aviary Systems with Confinement

## Advantage:

- Allows for confinement after transfer to allow the flock to orient to nests, feed and water (training)
- Allows for confinement in the early morning leading up to peak production
- Optimal bird movement
- True nest.
- Fewest Floor eggs
- Worker friendly inspection aisles
- Advantageous with flighty pullets
- Easiest cage free system to manage
- Well proven design

# Confinement With Inspection Aisles

## Cons:

- **Certifying agencies objects the doors**



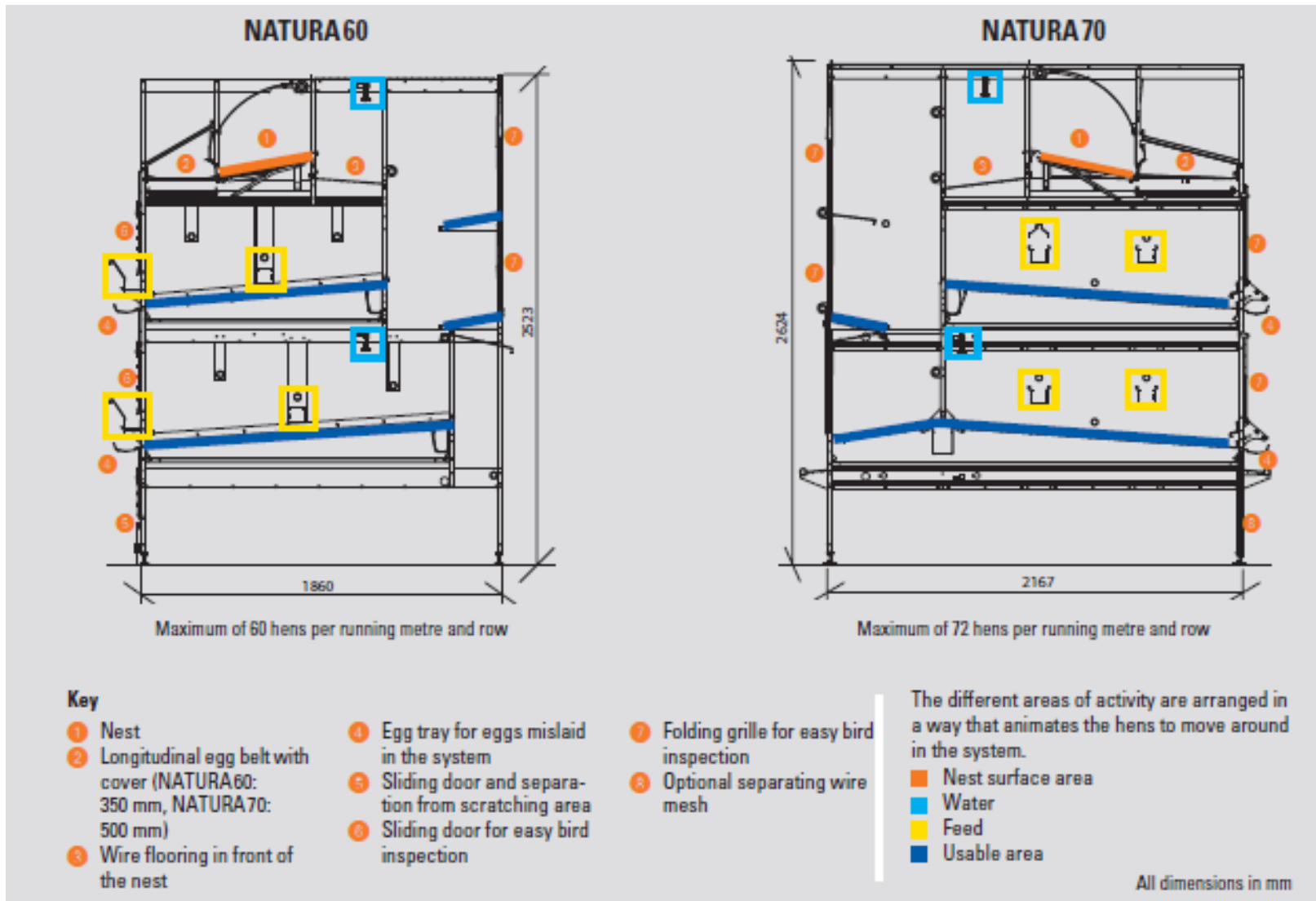
# Advantages of confinement at the onset of production

- Easy transition.
- Pullets rapidly learn to access nests, feed and water.
- When confined, aisles can be much more easily prepared before release of the flock
- Less dust during routine management enhances conditions for workers

# Advantages of locking birds in for a few hours in the morning

- Direct birds towards nests, drinking and feeding activities.
- When the flock is confined, aisles can be inspected and worked on easily
- Easier to control litter moisture and texture
- More acceptable environmental conditions for workers

# Natura 60/70 (Big Dutchman)









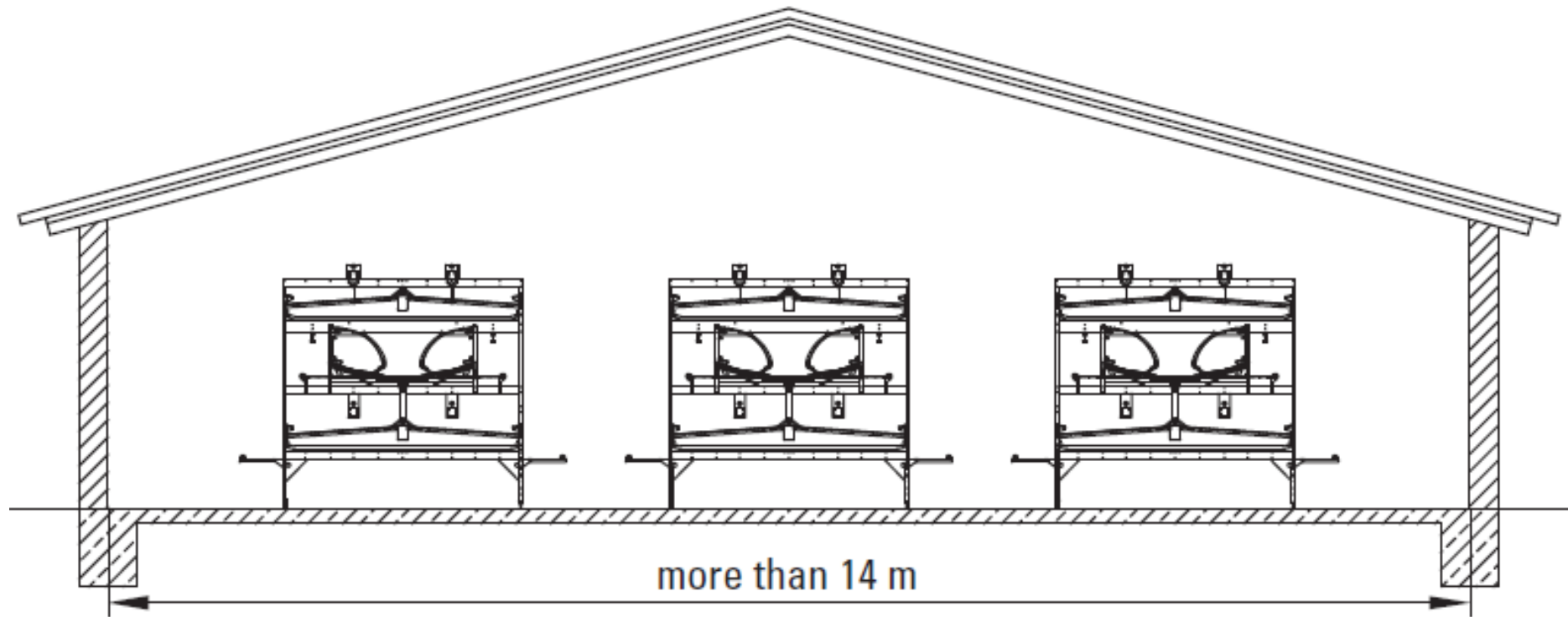
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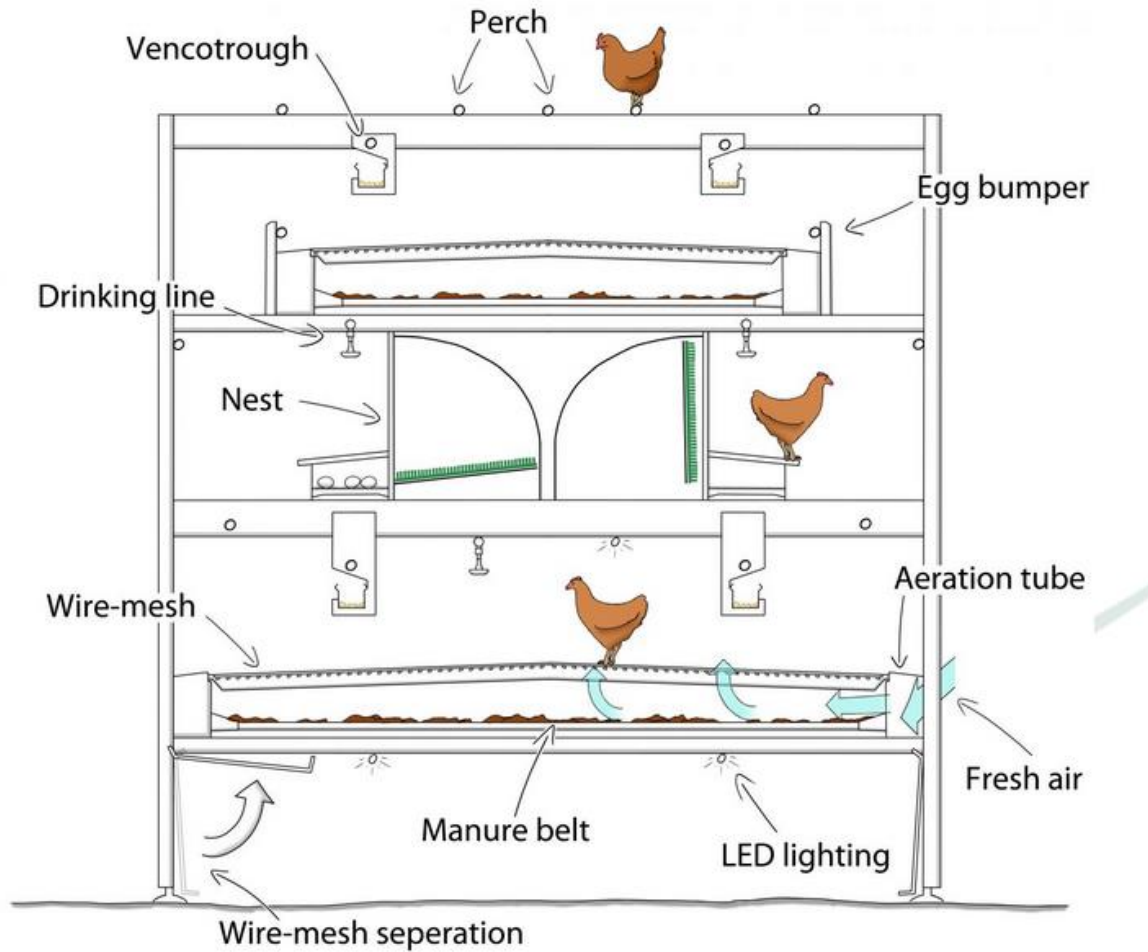
# Aviary System

# Aviary System – open system





# Bolegg Terrace



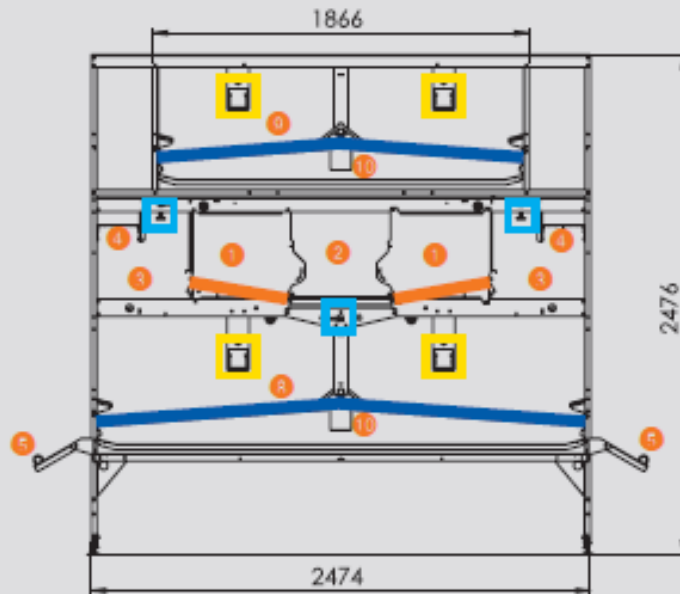


# NATURA Step



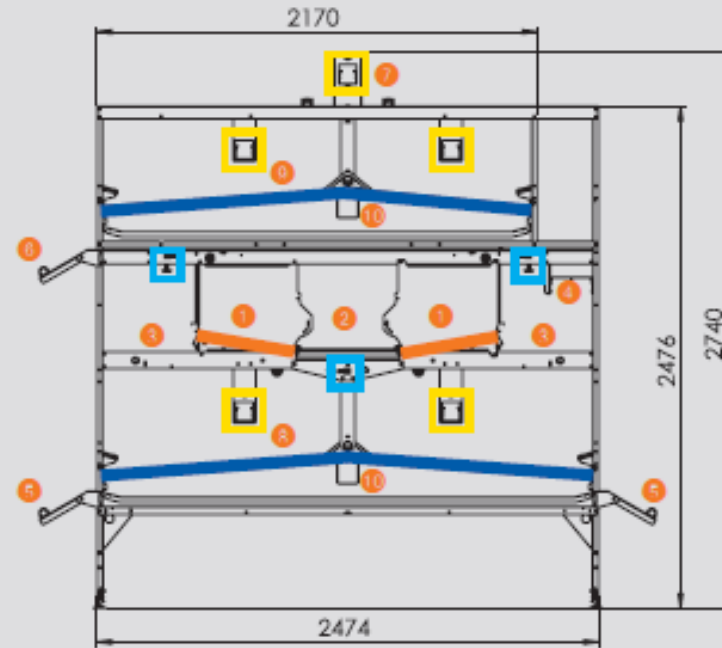
Big Dutchman®

NATURA Step 24-18



Stepped on both sides for maximum bird movement

NATURA Step 24-21



Stepped on one side for additional usable area

**Key**

- 1 Nest
- 2 Central egg belt (500 mm)
- 3 Wire flooring in front of the nest with approach perch
- 4 Integrated "hop and turn" plate
- 5 Approach perch
- 6 Additional approach perch (optional)
- 7 One or two additional feed lines (optional)
- 8 Manure belt level 1

- 9 Manure belt level 2
- 10 Air duct

The different areas of activity are arranged in a way that animates the hens to move around in the system.

- Nest surface area
- Water
- Feed
- Usable area

All dimensions in mm

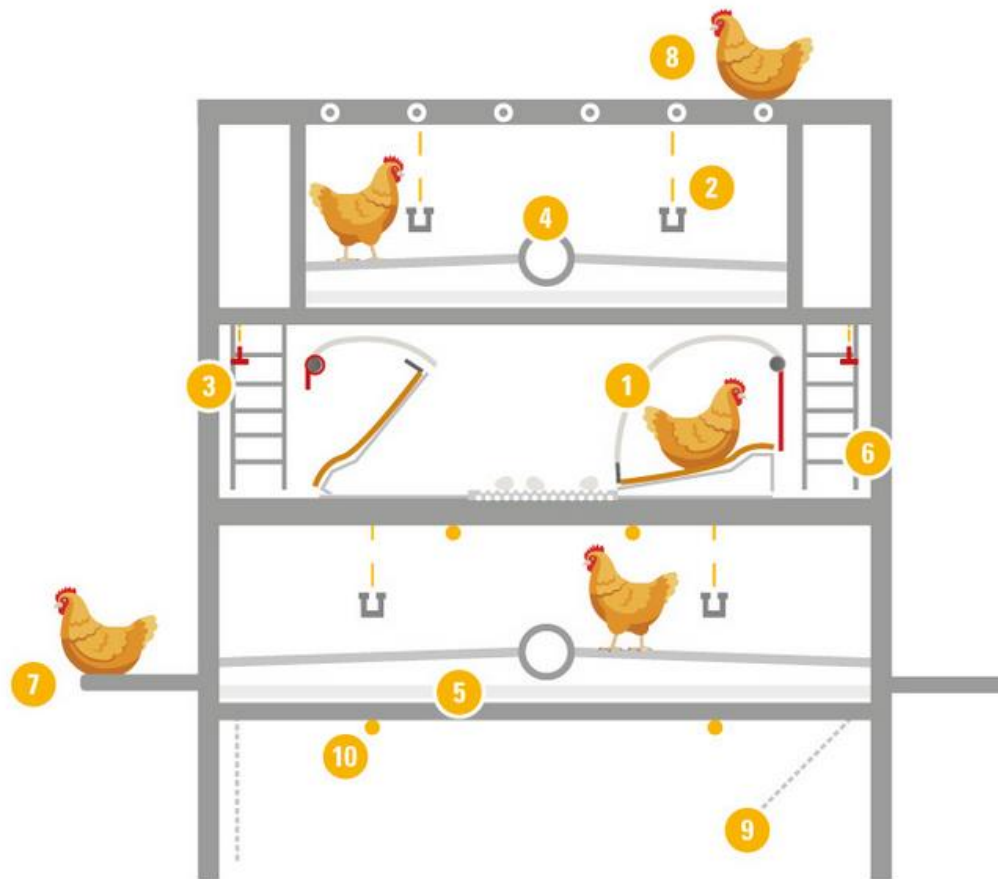






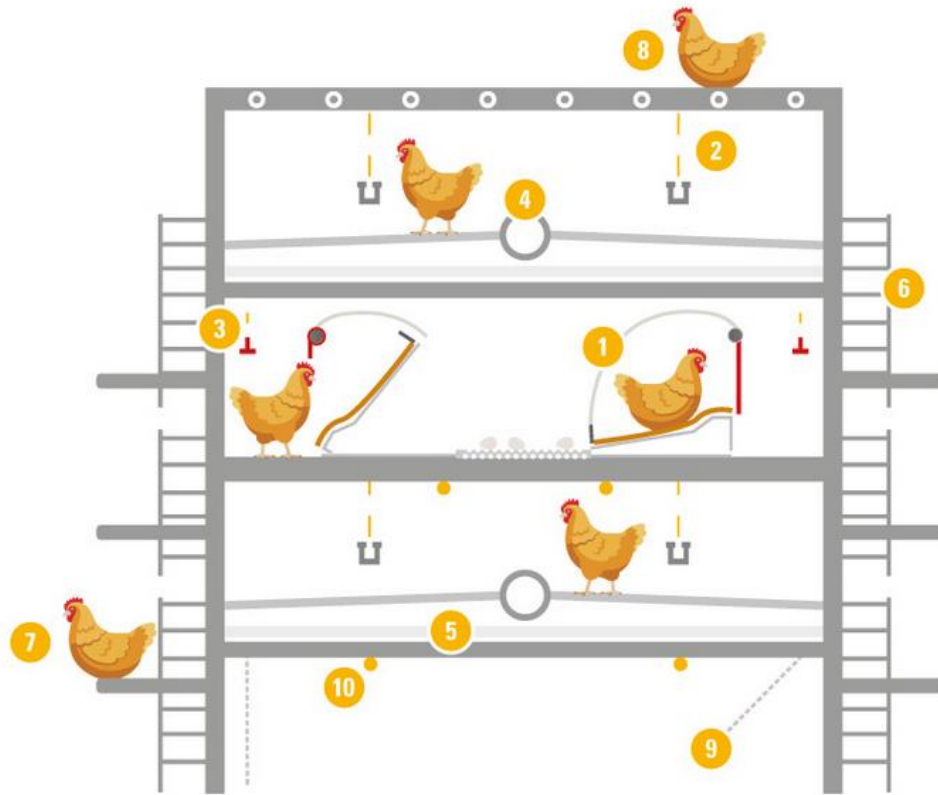


# Comfort 2 inside



- 1 LayMaxx laying nests
- 2 Feed system
- 3 Drinking lines
- 4 Air tubes
- 5 Manure belt
- 6 Stairs
- 7 Side platform
- 8 Perches
- 9 Wire mesh panels
- 10 LED lighting

# Comfort 2

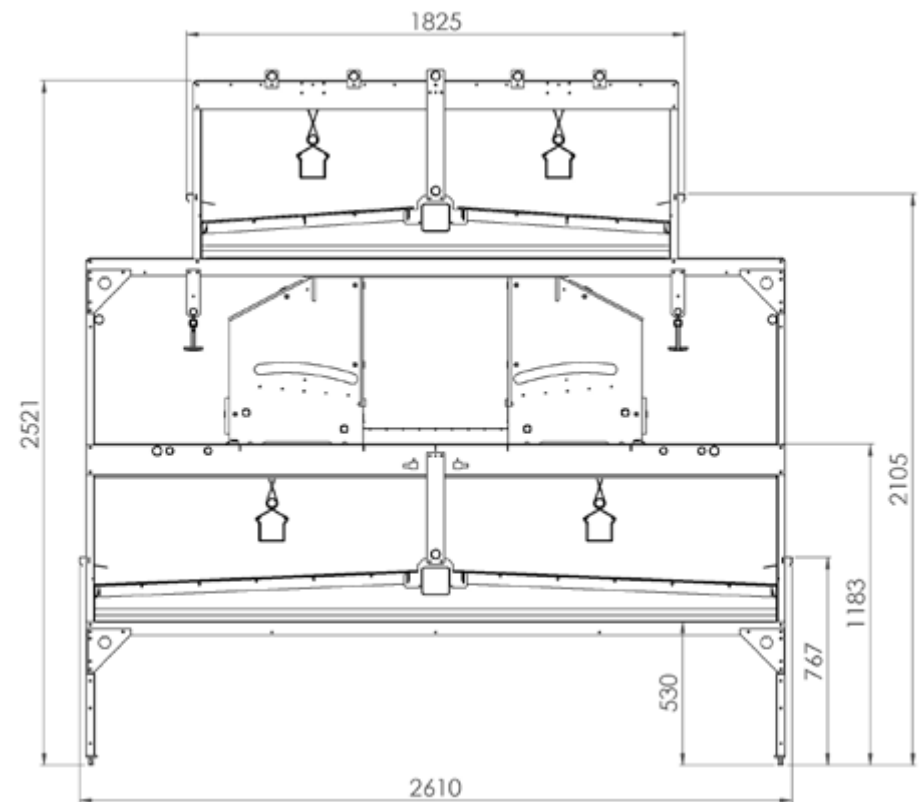
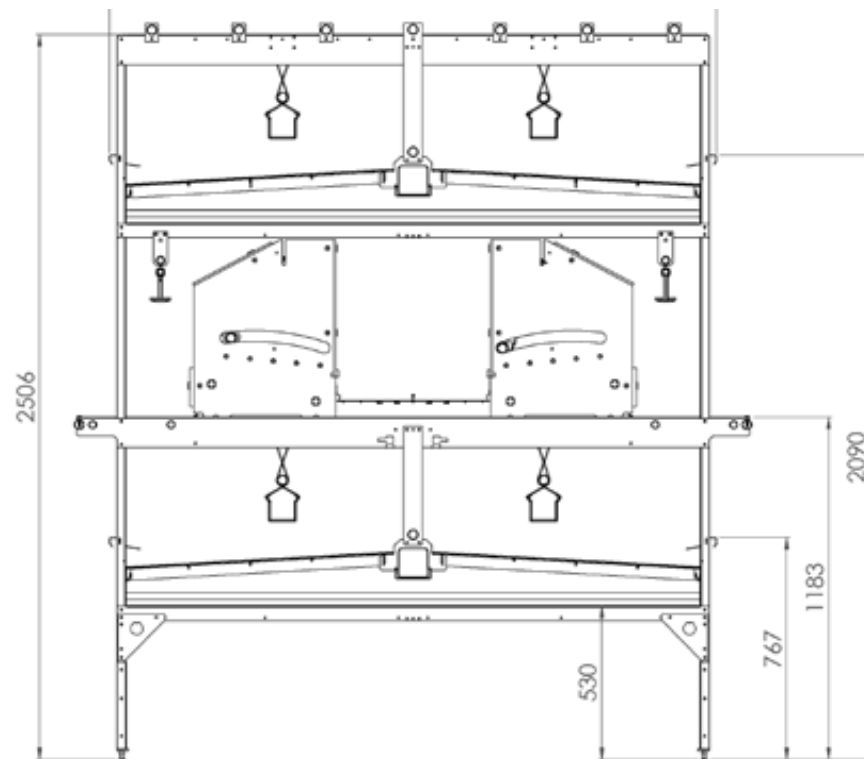


- 1 LayMaxx laying nests
- 2 Feed system
- 3 Drinking lines
- 4 Air tubes
- 5 Manure belt
- 6 Stairs
- 7 Side platform
- 8 Perches
- 9 Wire mesh panels
- 10 LED lighting

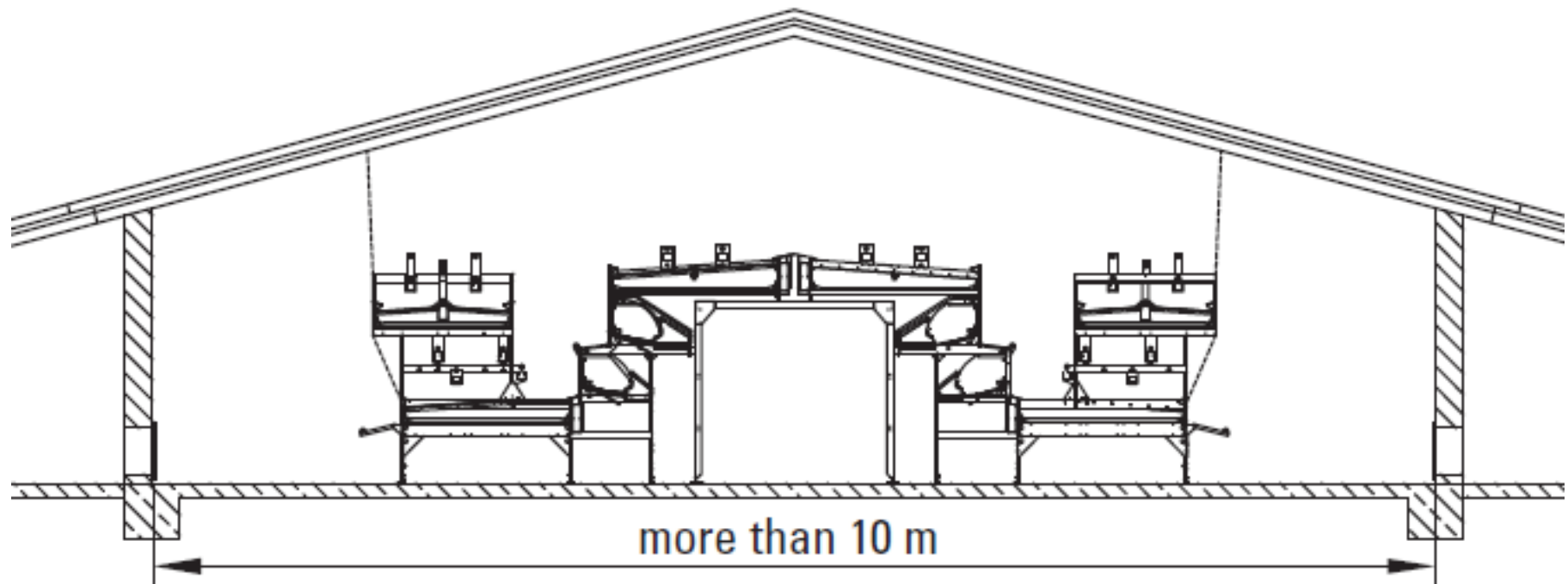




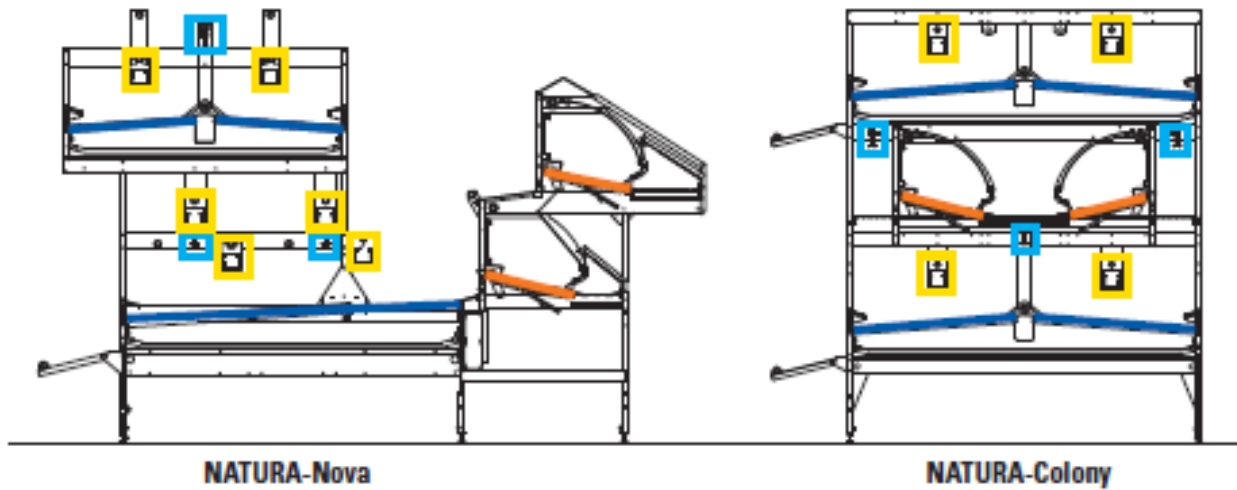
# Vike-2 and Vike-5



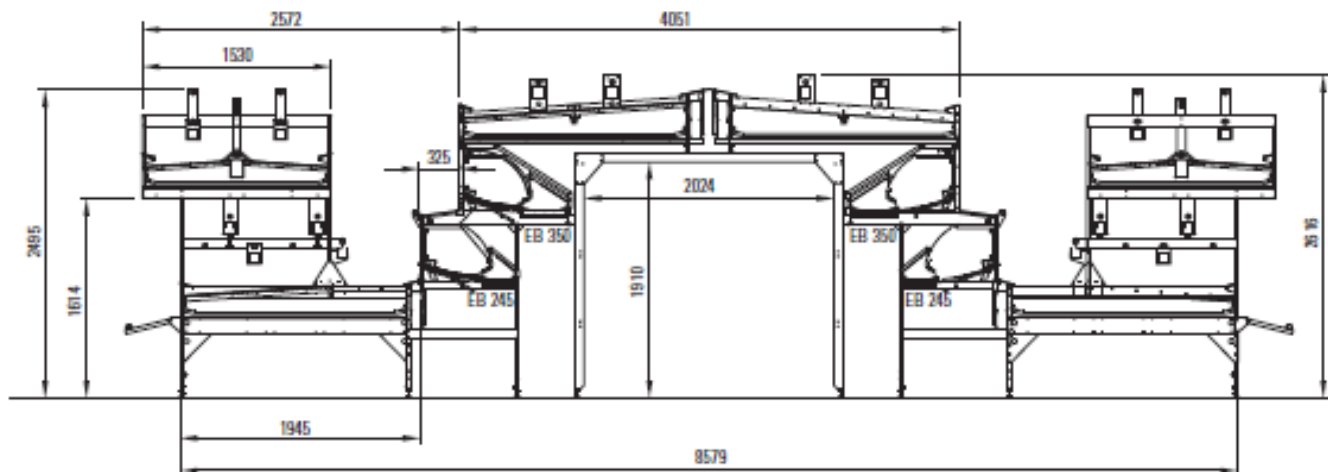
# Aviary System – open system



# Natura-Nova, Colony and Twins



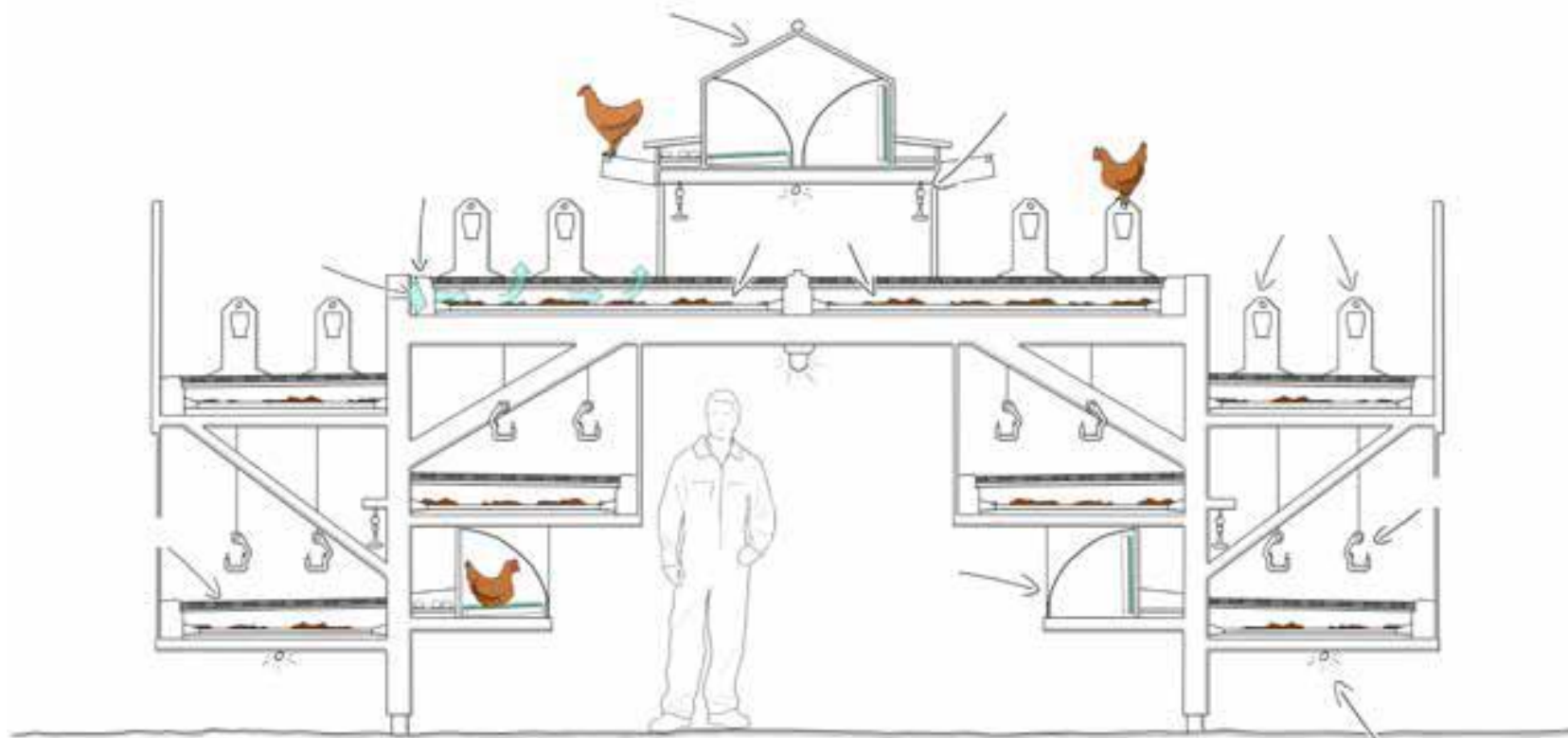
NATURA-Nova Twin







# Red L

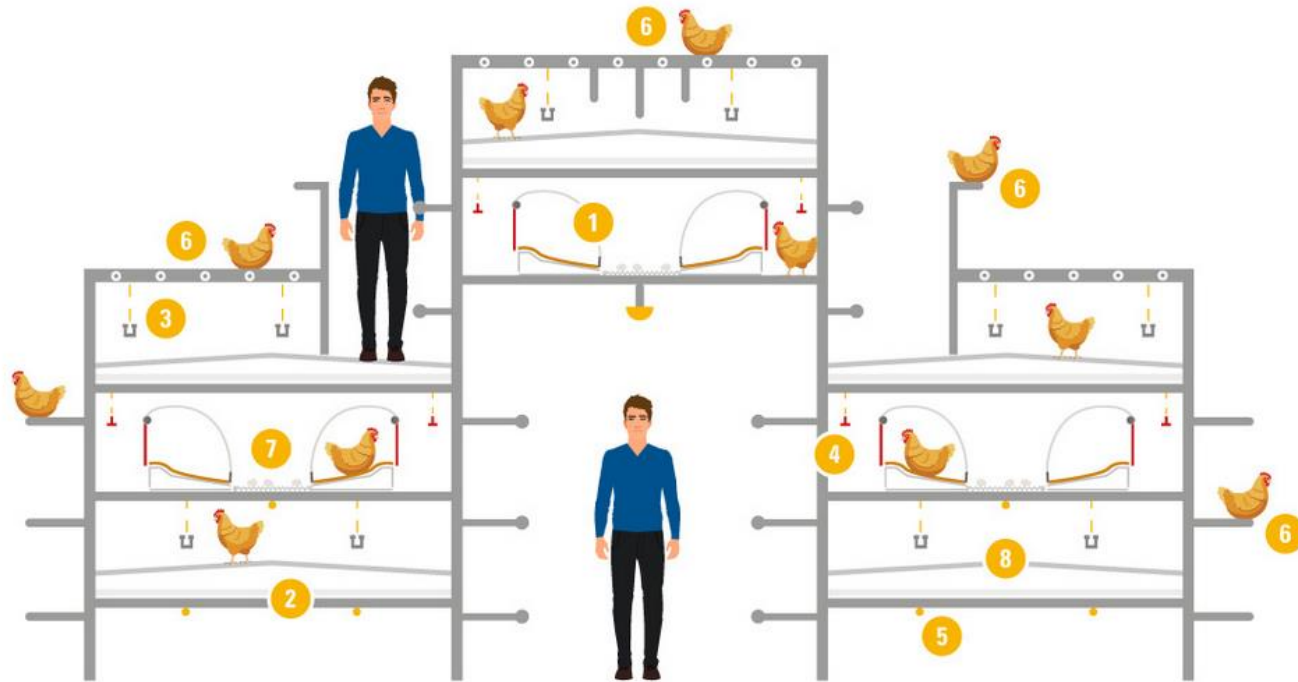








# Aviaview



- |               |                  |                |            |
|---------------|------------------|----------------|------------|
| 1 Nests       | 3 Feed system    | 5 LED lighting | 7 Egg belt |
| 2 Manure belt | 4 Drinking lines | 6 Perches      | 8 Slats    |

# Aviary – Open Systems

## Advantages

- Optimal bird movement
- True nest with protected belt
- High proportion of eggs laid in nests
- Easiest open cage-free system to manage
- **Meets all cage-free certification requirements**
- Well proven design

## Cons

- “System does not allow confinement of pullets after transfer”



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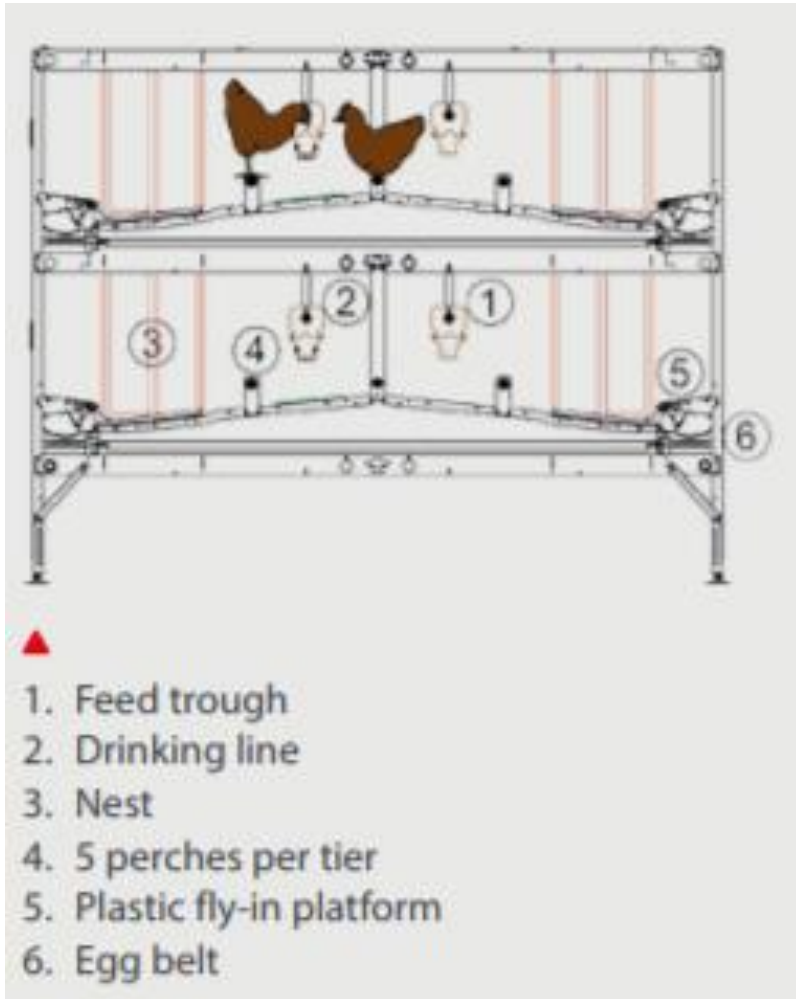
# Combi System



# Combi System

- Combi II (Farmer Automatic)
- Voliera VS224 (Tecmo)
- Valli Space Aviary (Valli)

# Combi II and Voliera









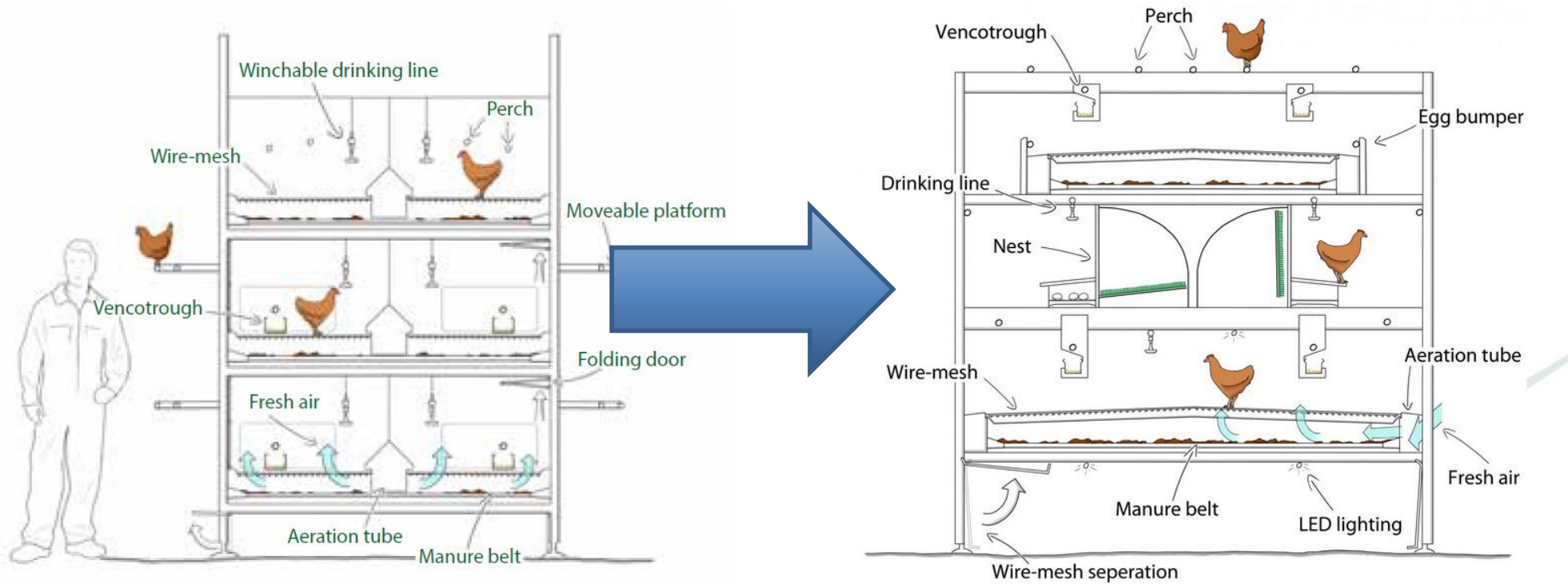
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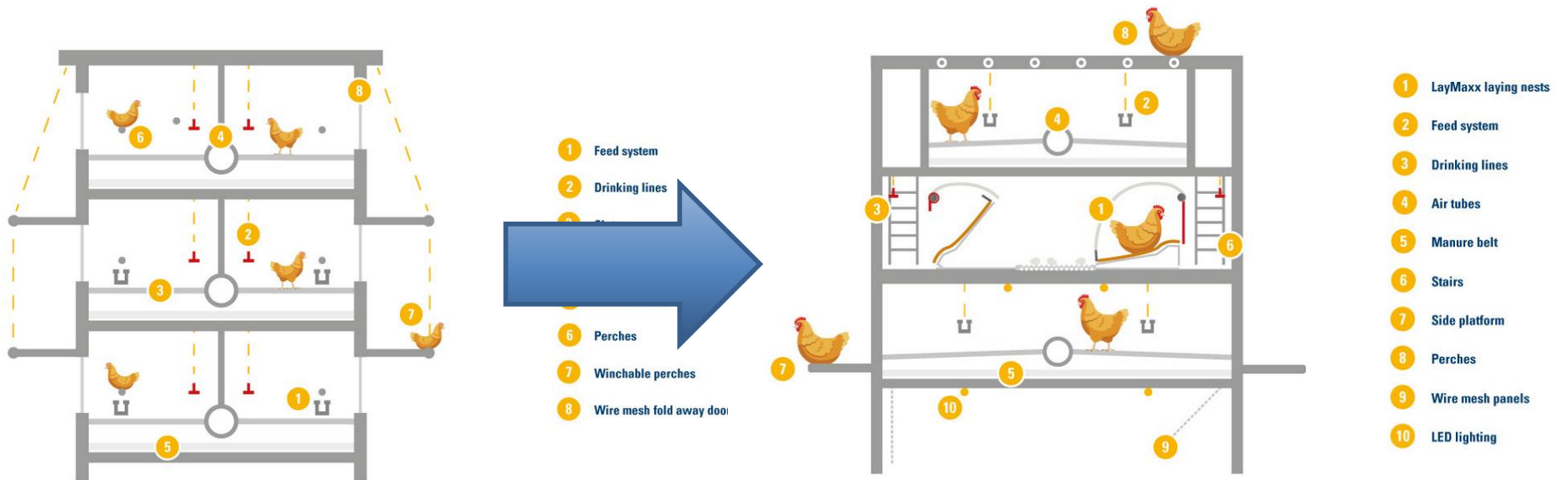


**IMPORTANT**

# Same equipment: rearing and Production

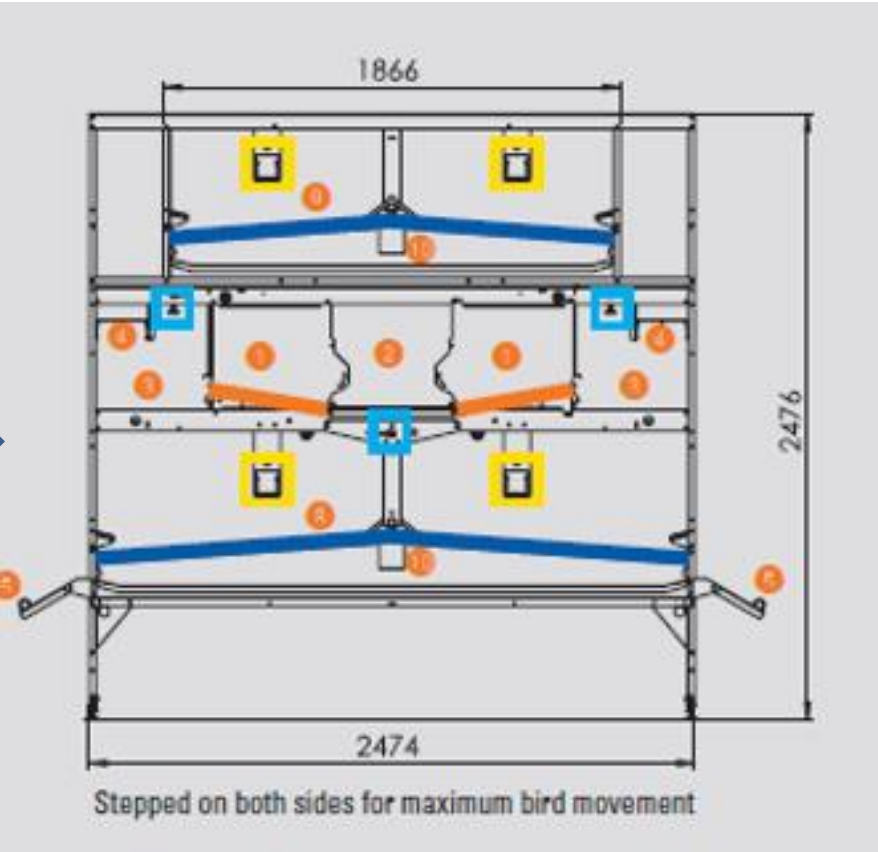
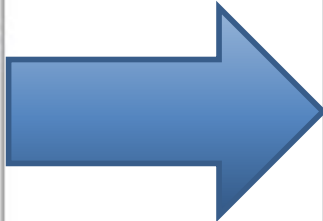
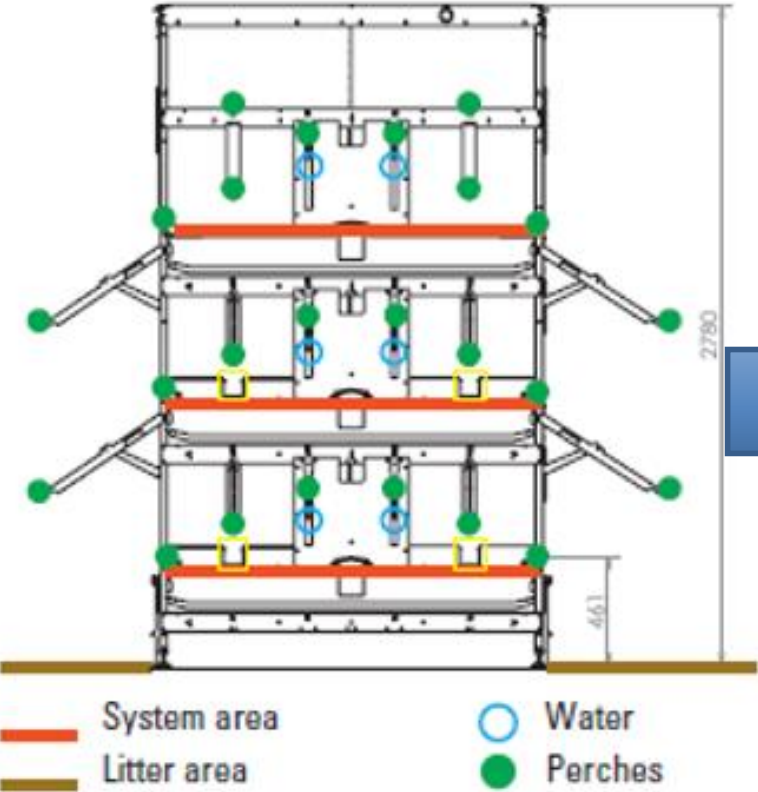


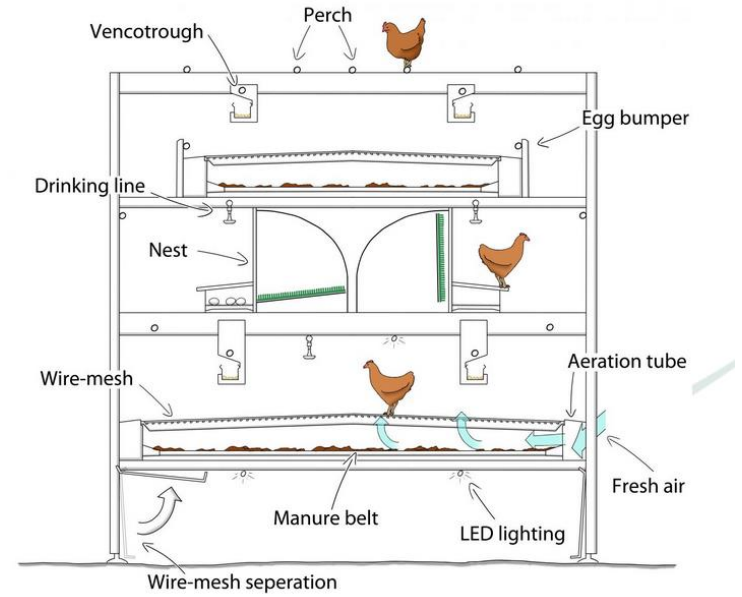
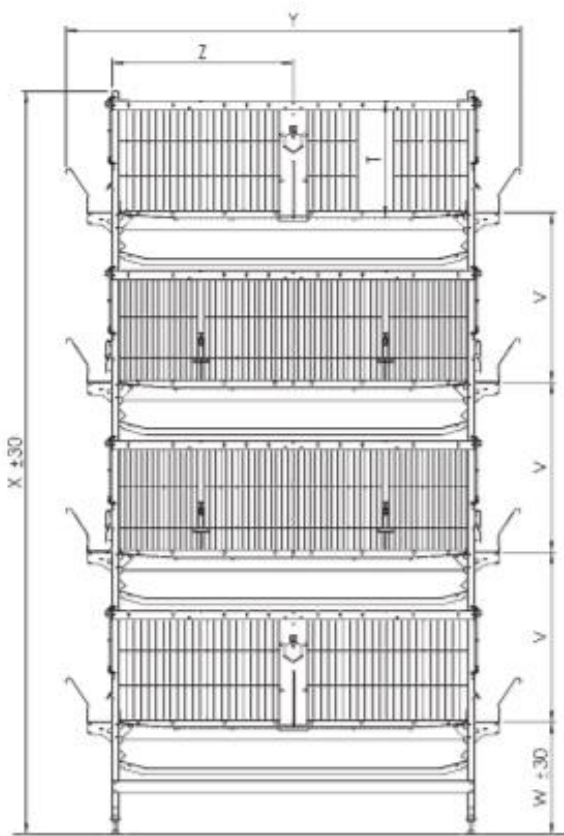
# Same equipment: rearing and Production



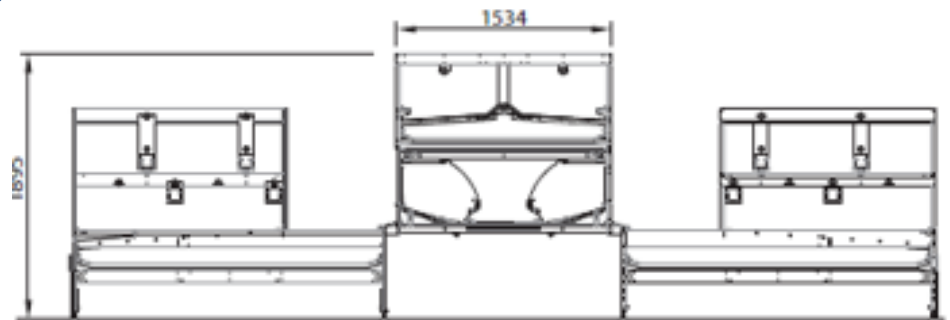


# Same equipment: rearing and Production





**NATURA Sunrise 21-15 – 33 % more system surface**



# Conclusions

- Egg production in alternative systems will keep growing.
- All the actors in the poultry industry are ready and working towards the same goal: to improve the welfare of the animals and to produce high quality products. Companies in alternative systems are also working towards the same goal.
- All options of alternative systems can be well managed and result in good results, in good animal welfare and high quality products. **Management is a key component.** Legislations!
- Key component is good housing in production systems and similar conditions for the animals.
- Always keep in mind the regulations and/or customers demands.



INTERNATIONAL

*The key to your profit!*



**Thank you**