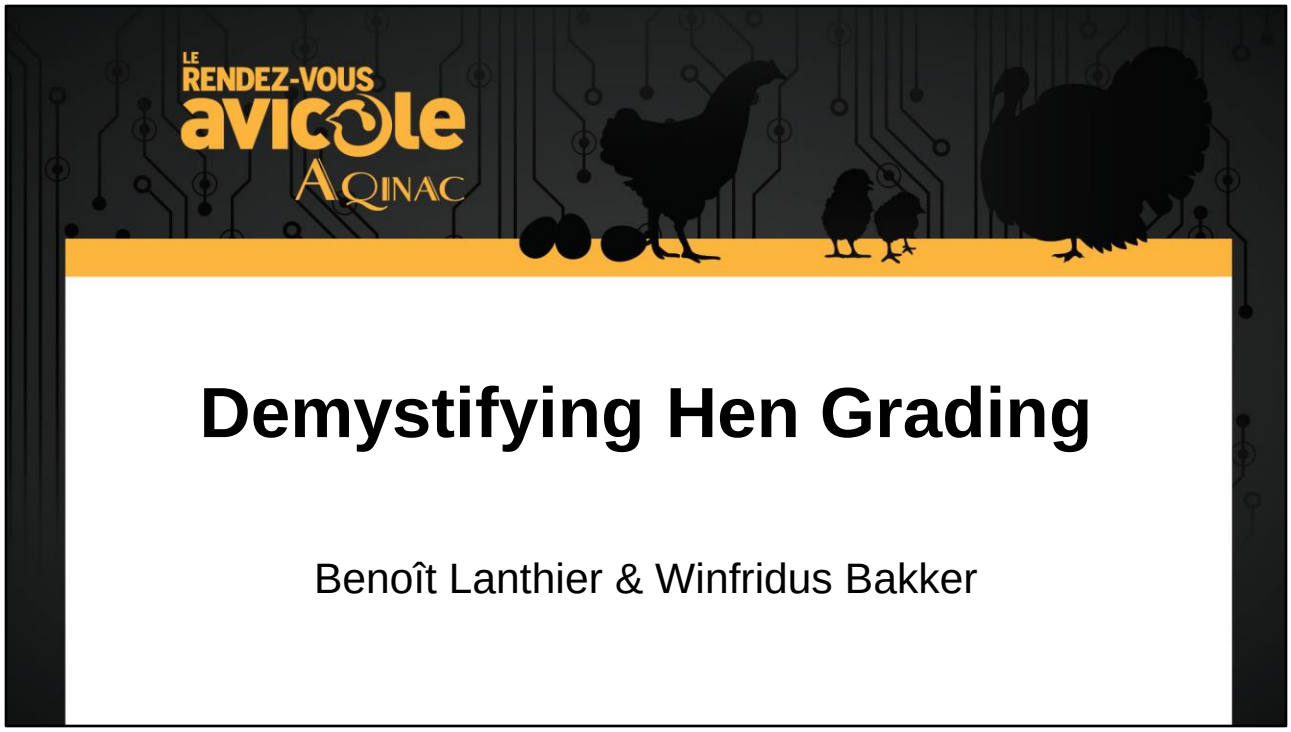


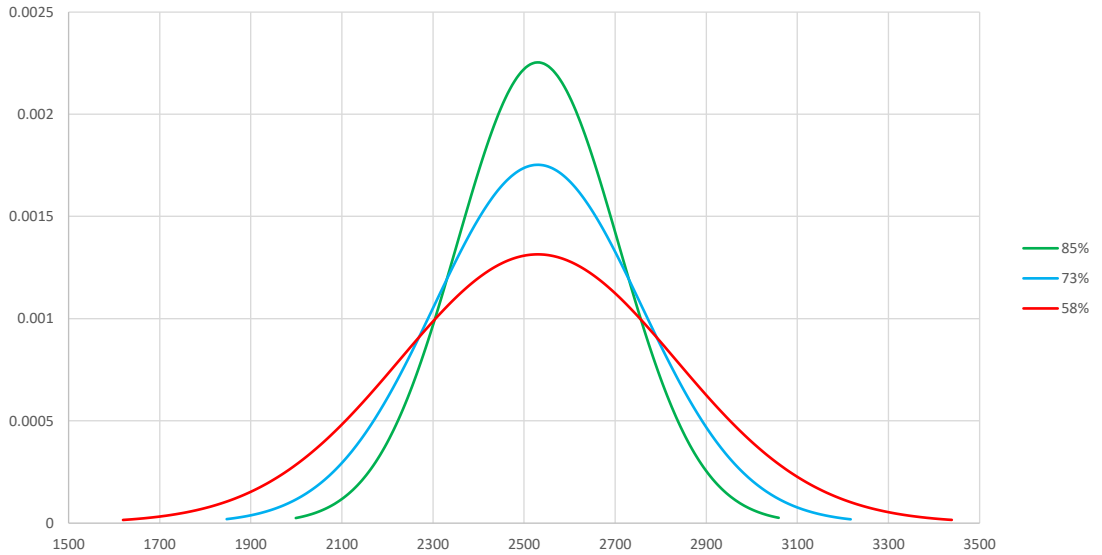
Demystifying Hen Grading

Benoît Lanthier & Winfridus Bakker

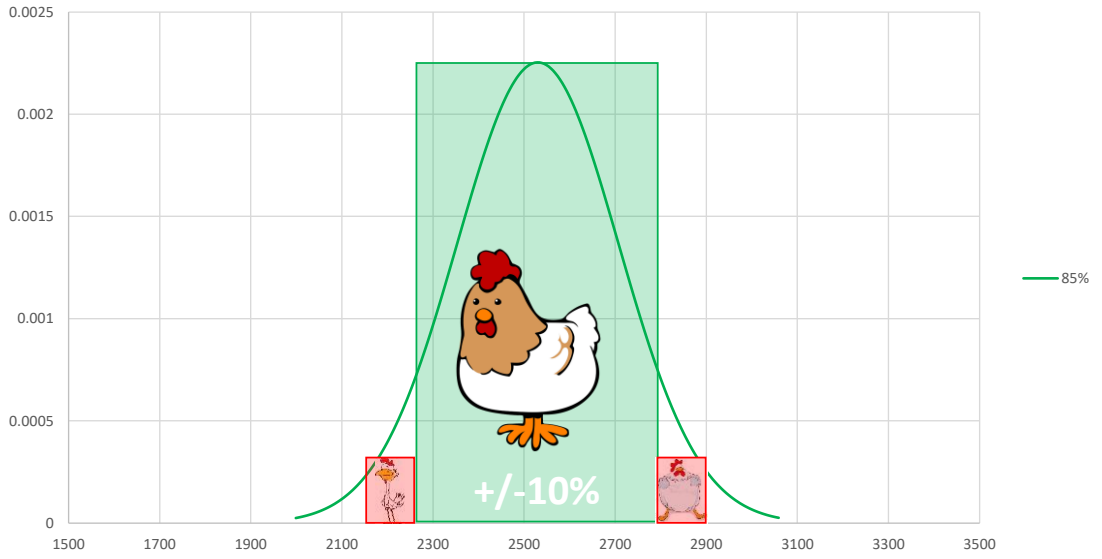
Why grade?

Answer: for a uniform flock

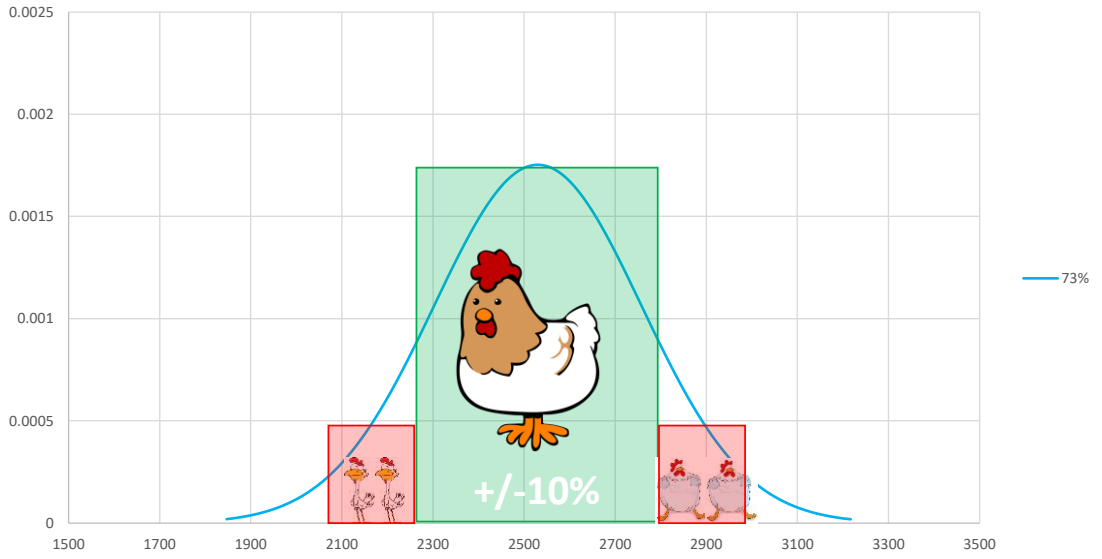
"Normal" weight distribution and uniformity



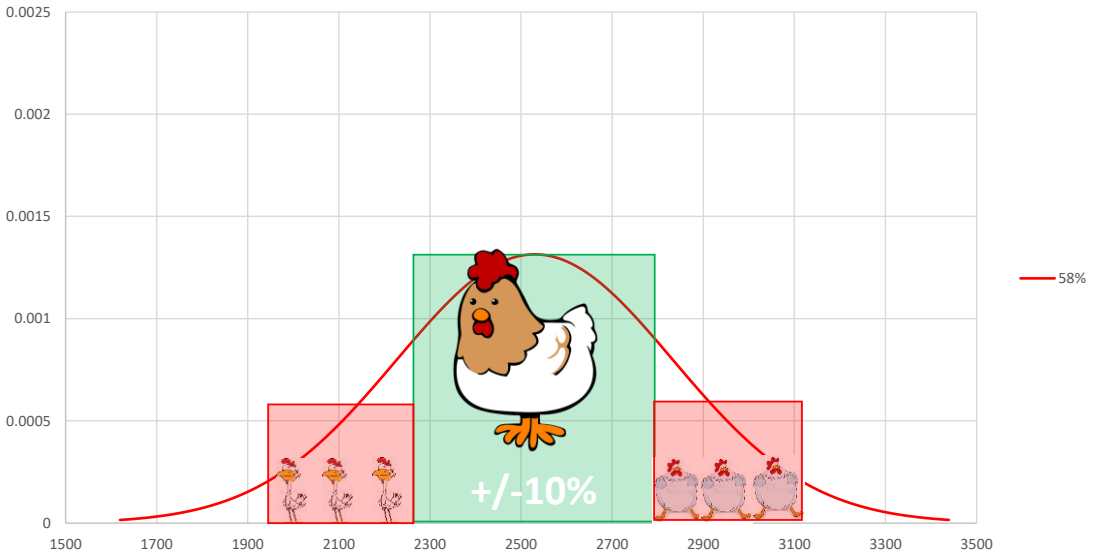
85% Uniformity - 7% CV



73% Uniformity - 7% CV

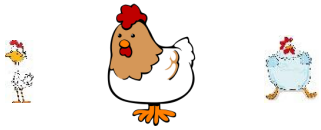


58% Uniformity - 12% CV

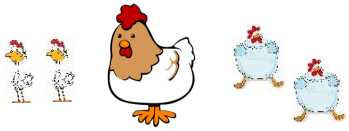


Importance of uniformity

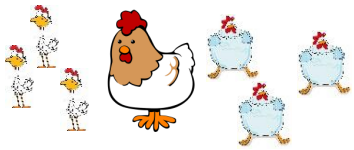
85%



73%



58%



When uniformity is low, it's even more important to take the lighter and heavier hens into account in the flock's management

This is done at the expense of hens that have the right weight and flesh condition

AND

With poor uniformity, more hens will die and/or never produce eggs

Importance of uniformity during stimulation

Hen too thin - lacks fat reserve

Not metabolically ready for stimulation. High mortality rate, weight loss, poor onset of lay

Hen too fat

The hen has already been metabolically stimulated before the light stimulation. Possible overstimulation and high mortality

Fat surplus will lower the hormonal response required for reproduction

Perfect hen

Good synchronization between metabolic and light stimulation. Low mortality, good onset of lay

Importance of uniformity

3 things to look for

- Fleshing score and fat reserve
  - The main indicator of puberty/readiness for stimulation
- Weight
  - Easy to measure
  - Make a small pen and weight all the hens in the pen
- Bone structure (carcass size–frame)

Fleshing score and fat reserve

Fleshing score and pelvic fat targets by age				
Weeks	Fleshing score (1-5)			Pelvic fat
12	70%	30%	-	-
16	40%	60%	0%	0%
19	< 10%	60%	30%	> 65%
20	< 5%	60%	35%	> 75%
21	-	60%	40%	> 85%

Bone structure (carcass size–frame)

Assessed by measuring the length of the metatarsal bone

Consequences of a non-uniform frame

- Weight information is not usable
- Difficult to obtain uniform fleshing score and fat reserve
- Competition between hens is not fair - some hens will eat much more than others

Grading: is it worth it?

Grading is mostly done in Latin America, where it's part of the regular program

Latin America has the best PS results in the world

In addition to good basic practices and good feed quality, very high uniformity contributes to these results

Uniform flocks are easier to feed and manage, with less mortality and selection

Grading: is it worth it?

Scarcity and cost of labour makes grading more difficult to do

Machines have been developed to facilitate grading. Grading can be done faster, with fewer people

There are a few equipment options to assist with grading

Grading should not be used to make up for management problems such as feed space, feed distribution, equipment breakdowns, etc.

- Consider adding grading to the management program when 70% uniformity (within +/- 10%) can be achieved consistently without it
- If this uniformity level is not reached, it is better to focus on the other control points before investing in grading

When and how to grade

When to grade

The grading must be done early (1-4-8 weeks) for a good uniformity of carcasses (frame)

After 12 weeks, look for uniform body condition

If only one grading can be done, do it around 3-4 weeks. This will result in better carcass uniformity, which makes the rest of the management easier

Hens are separated in 3 to 4 categories (Light, Medium, Heavy and +/- Ultra-light)

Manual grading

Manual grading

Manual grading

Manual grading

Manual grading

Impractical in Canada

- Requires a lot of staff
- Slow process
- The team gets tired and makes mistakes
- Birds must be counted again on the following day
- More stressful for the hens

However, manual grading is easier when done at 7 days

A speed of 700 chicks/h/worker can be reached

Grading/vaccination machine

Impractical and very expensive (rental only)

Brazilian machine–Peso Exato

Brazilian machine–Peso Exato

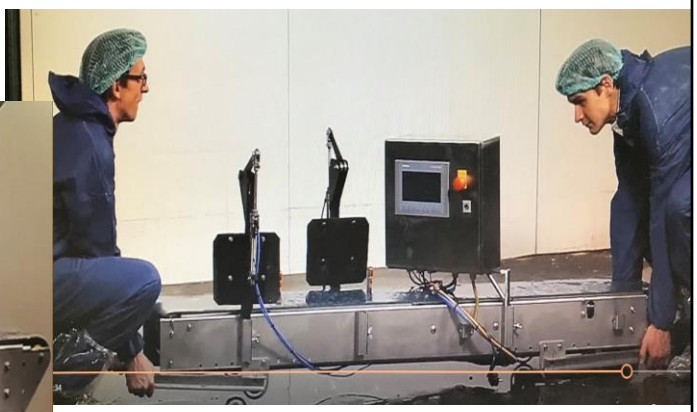
Brazilian machine–Peso Exato

With 2 machines and 5 employees

- About 900-1,200 birds/hour per machine
- -> about 16,000 birds/workday

Cost: about $10,000 US per machine

SympleSelect



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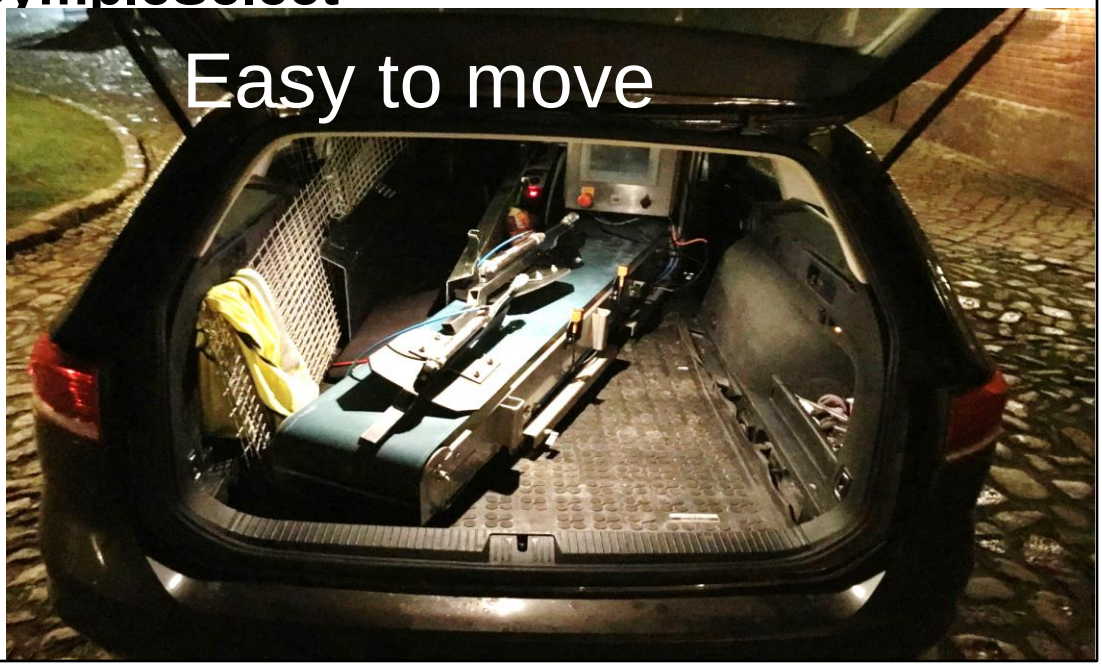

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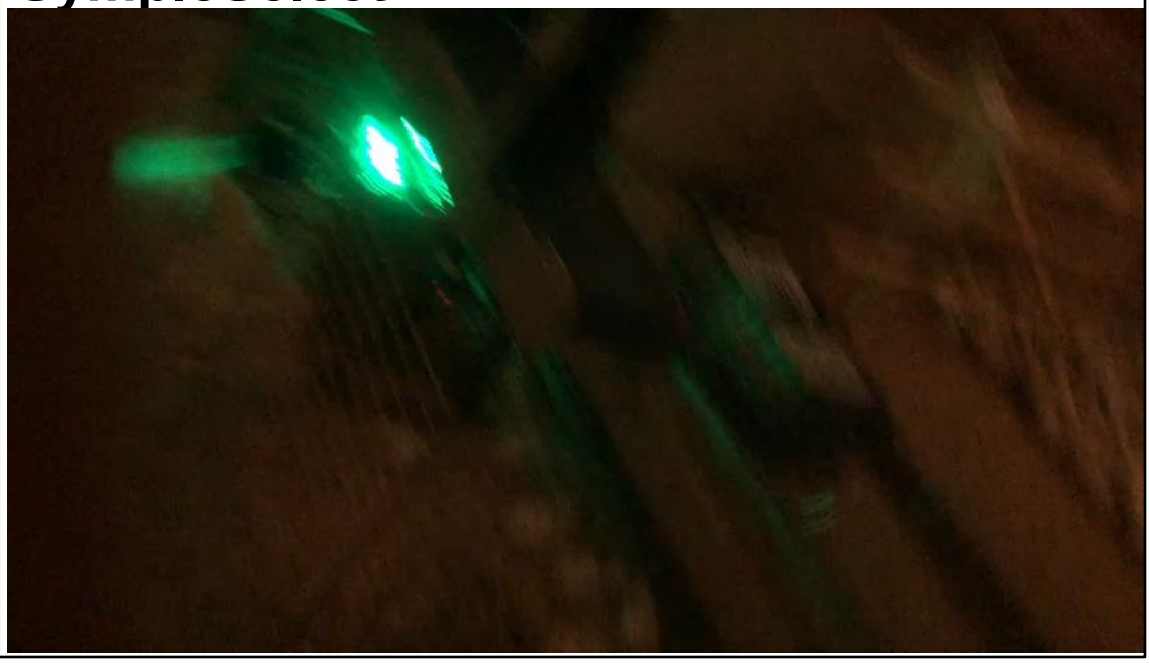


SympleSelect

Made in Germany

Fast, efficient, easy to move

- Grading time example
- 25,000 birds in a 10 h day with 5 employees and 2 machines. Time includes preparation and separation set-ups

Cost: About $30,000 US

SympleSelect - Observations

Set a blue or green light under the machine

Keep the environment as dark as possible so that the birds do not move too much

Put the birds facing forward on the conveyor to prevent them from moving

Adjust the paddles according to age and weight

Grading can be done from 19 days to 12 weeks

After Grading

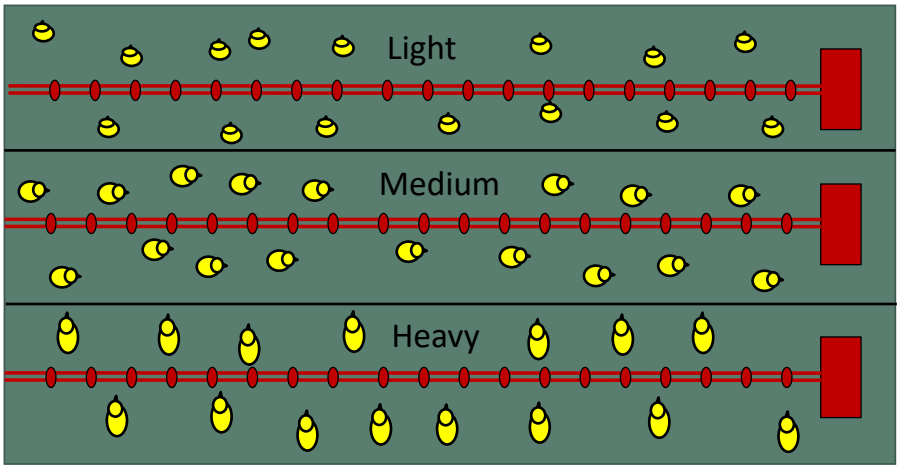
Post-grading management
Feed allocation example

Grading at 4 & 8 weeks of age			
Week	Small	Average	Heavies
1	22	22	22
2	34	34	34
3	37	37	37
4	40	40	40
5	47 (+7)	42 (+2)	41 (+1)
6	48	44	42
7	49	46	44
8	49	49	46
9	54 (+5)	51 (+2)	48 (+2)
10	55	53	50
11	56	55	52
12	57	57	54
13	59	59	54

For the smaller ones, an additional day of feeding can be added. For example, if feeding on a 5/2 program, it's possible to give a 6thday of feed to the smaller ones for 2-3 weeks

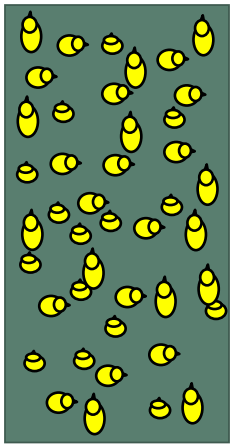
Post-grading management

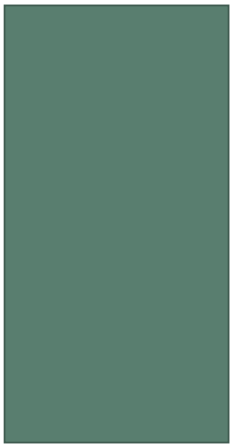
Ideal: separate the floor using a different feeding system for each weight-group

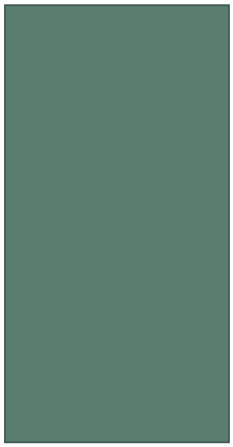


Post-grading management

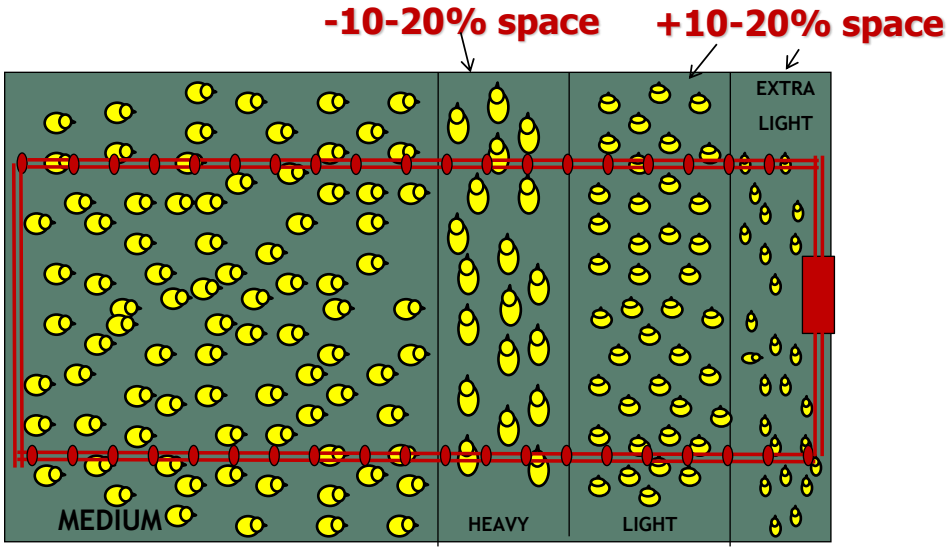
move the light/heavy birds in an empty house/floor







Post-grading management



Conclusion

Determine how many gradings to do. If only 1, do it at 3-4 weeks

In any case, the basic management points (feeding space, density, feed quality, feed quantity, etc.) must be respected

If uniformity without grading is less than 70% (+/- 10%), find out why. Grading will be valuable only if uniformity without grading is at least 70%

It's important to set up a good plan for post-grading management

Grading helps with

- **Better uniformity of carcass, weight, fleshing score and fat reserves**
- **Improved uniformity when a minimum threshold is reached without grading**
- **Achieving uniformity that reduces mortality and increases the number of hatching eggs per hen**

The use of automation for grading is inevitable in the future, considering the decreasing availability of labour. The return on investment from grading should justify the cost of the machines