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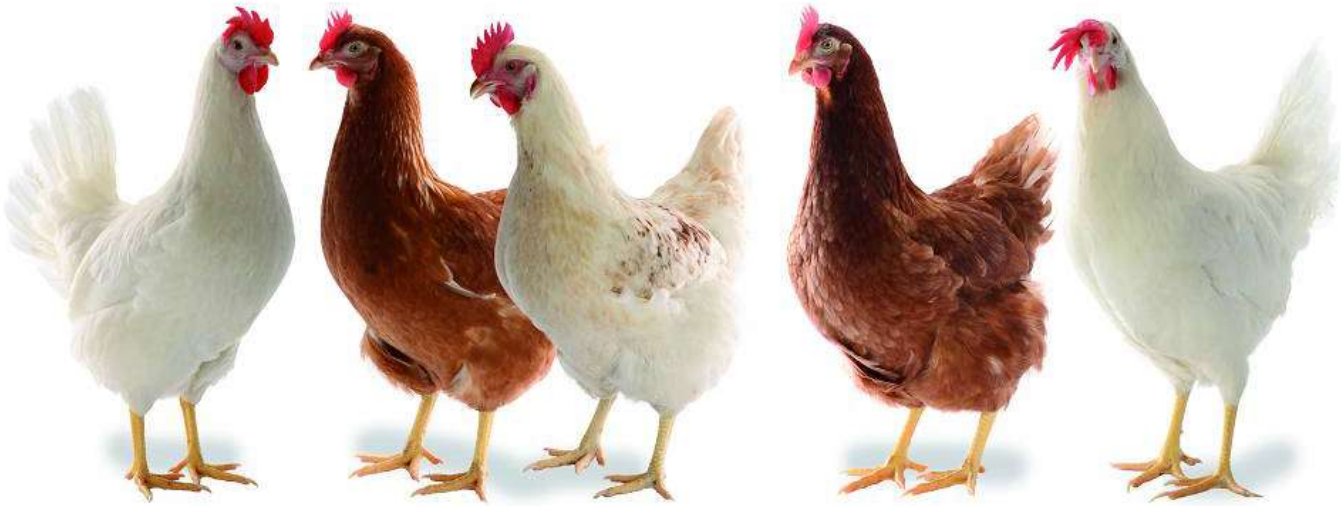
The specialist for layer breeding



BREEDING FOR SUCCESS … TOGETHER

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European lessons learned from moving an industry to cage-free

Presented by:
Prof. Dr. Rudolf Preisinger
Chicago, April 2016

A cage-free Europe?

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Traditional cages are banned.

Enriched cages with

- Nests
- Sand baths
- Perches

are to be banned in Germany after 2025!

Cage-free?: mainly aviaries

Percentage of layers in Europe, according to housing system (2013)

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Country	Hens (mil.)	Enriched cages	Free-range	Floor*	Organic
Italy	60,3	68	2	28	2
Germany	49,0	11	17	63	9
France	47,0	70	17	7	6
Spain	38,0	93	4	3	< 1
Poland	37,6	87	2	10	< 1
United Kingdom	36,6	44	48	6	2
The Netherlands	32,9	15	16	64	5
Belgium	8,4	61	10	27	2
Portugal	7,2	94	1	5	< 1
Sweden	7,0	24	< 1	63	12
Romania	6,5	76	< 1	23	1.0
Hungary	5,6	74	1	24	< 1
Czech Republic	5,5	84	< 1	16	< 1
EU	**380.5**	**57**	**12**	**27**	**4**

* Possible aviary housing in free-range, floor and organic

Shares/Sales: Egg Market

„Brown /White“ for Europe

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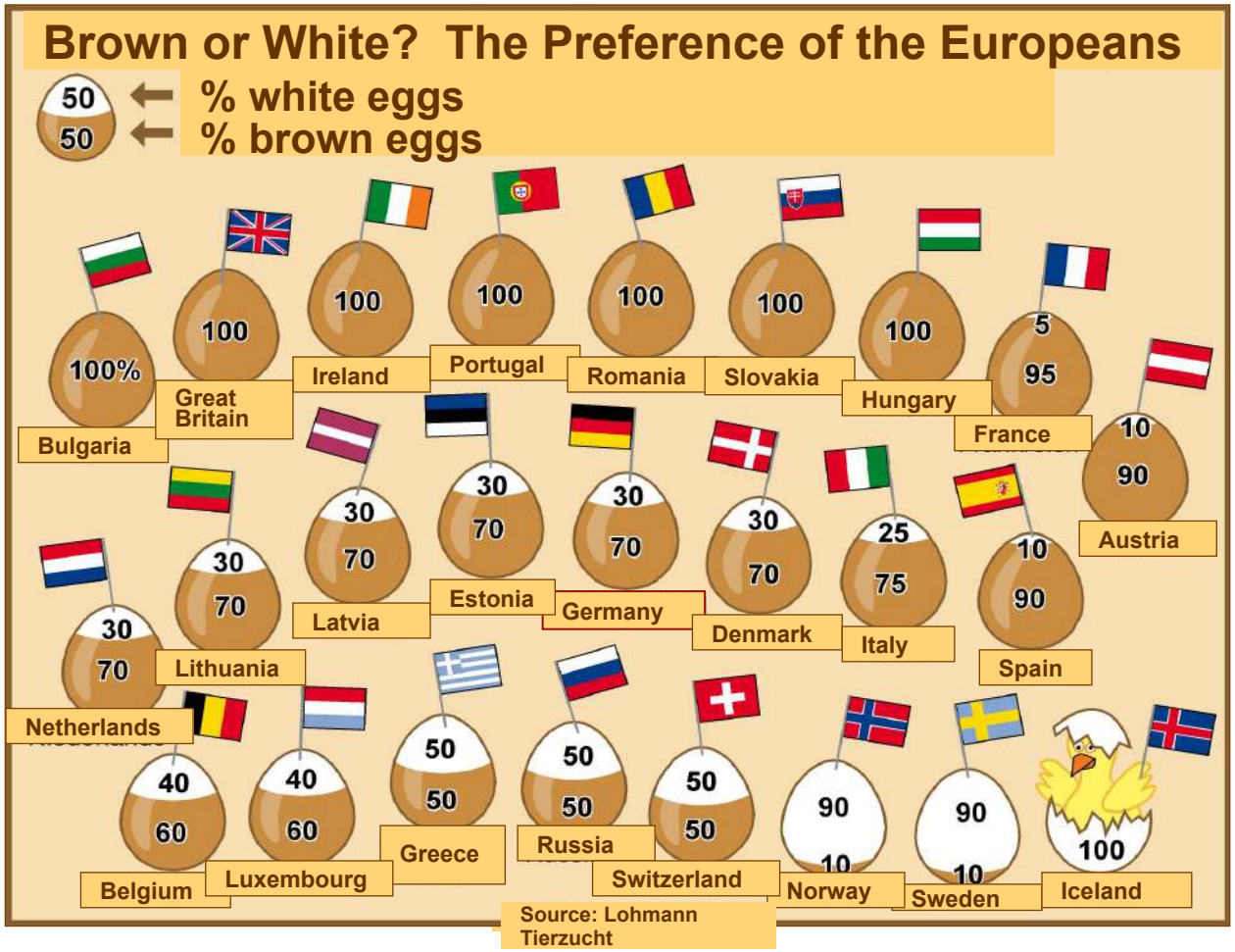

Strategic trends in poultry breeding

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- Animal welfare is an important part of the movement towards more sustainable factors in the society combined with other positive values

- Several EU retailers are using animal welfare in their advertising campaigns and promotional material to differentiate themselves from competitors

  (**C**orporate **R**esponsibility **P**rogrammes)

Trends for Europe

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- ✧ Cage-free is still on the increase
- ✧ Within 5 years, no beak treatment, not even with Novatech!
- ✧ Within 5 – 10 years, sex determination in the egg (< 10 days)
- ✧ Constantly high feed prices
- ✧ GMO-free and protein sourced from Europe

Target of breeding

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Continuous increase in

- Length of production period
- Saleable no. of eggs per hen housed

by means of extended laying sequences and long-lasting good shell quality and continuous improvement in liveability.

We have to anticipate changing needs at least 5 years ahead (e.g. enriched cages, free-range, ban on beak treatment, culling day-old males)

Selection goals

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Selection must not be focused on current market / customer needs alone

but rather ...

On global market needs of the future,

in terms of;

- ✓ Longer cycles
- ✓ Feed / number of saleable nest eggs
- ✓ Bird welfare and egg quality

Settlement is at the end

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Laying sequences with 100 or more days

- Feeding according to performance (egg size)
- Most of the hens laid an egg daily over a period of 50 days (52 %)
- Without rest (87 % of the resting periods are just for 1 day)
- The ability for shell forming is a limited factor
- Persistency in laying rate and shell stability are the keys to success
- In aviaries higher energy demand (activity level)

Performance testing

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Cages

Floor housing
(free-range)

Small colonies

Hen-specific performance testing in cages

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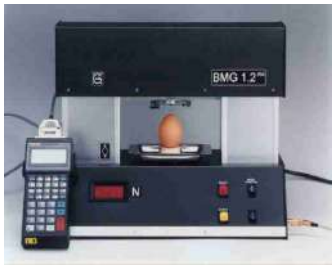
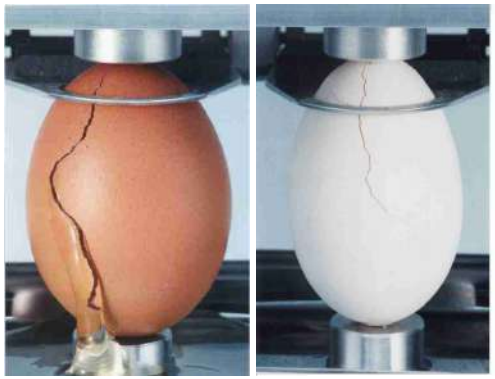
In single bird cages

- „easy“ data recording of relevant performance traits (egg number, egg quality, feed conversion ratio)





- no data recording of important nesting behaviour traits

Performance testing in single next boxes and single pop-holes

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Low frequency transponder

Performance testing in family nests and wide pop-holes

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High frequency transponder

Laying performance, nesting and free-range behaviour

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Automatic data recording of behaviour patterns and laying performance traits in group housing since more than 10 years

- free-range behaviour
  - a) frequency of passages
  - b) duration of stay
  - c) diurnal rhythm

Electronic Pop Hole (EPH)

- nesting behaviour
  - a) nest acceptance
  - b) oviposition time

- performance traits
  - a)Egg number
  - b)Egg weight- and quality

Electronic Nest System (Weihenstephan Funnel Nest Box FNB)

Average values: duration of stay in a Single vs. Family nest

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	Single Nest Box (FNB)		Family Nest (HFGN)	
	with oviposition	*without oviposition*	*per nest visit*	*per day*
brown layers	30 minutes	10 minutes	25 minutes	35 minutes
white layers	45 minutes	30 minutes	45 minutes	75 minutes

Nest occupancy during the day

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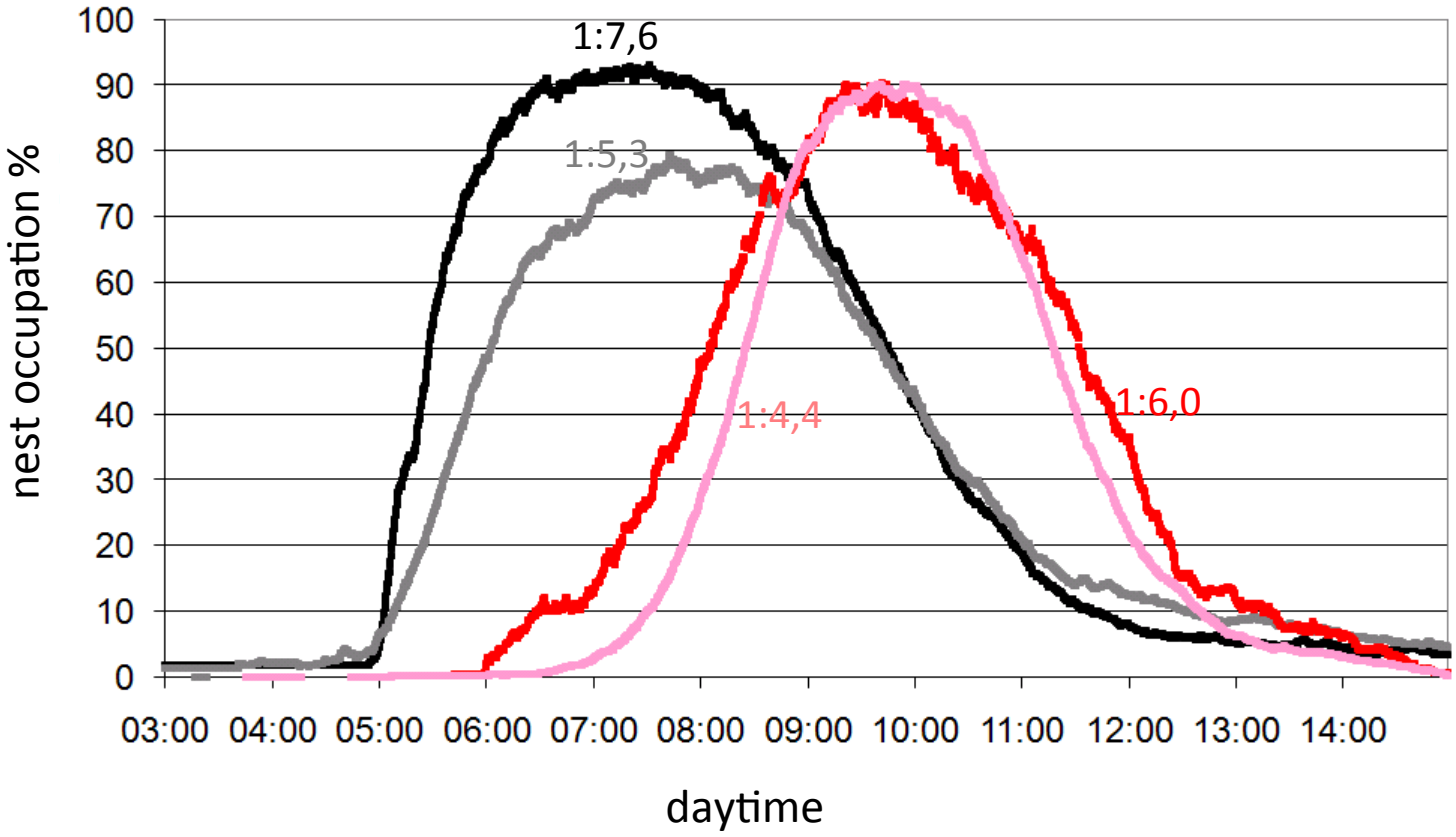

New traits and recording technologies

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- Dynamic stiffness and breaking strength
- Shape of the beak and feather cover
- Shape of the beak and livability
- Nesting behaviour and laying on the perch

New traits for cage-free

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① Avoid laying on the perch

② Number of saleable nest eggs (penalising families with poor nest acceptance)

„Vital and docile layers with stable plumage, strong bones and performance-based feed consumption laying an egg with a robust shell <u>EVERY DAY</u>“

Selection for Overall Performance Index

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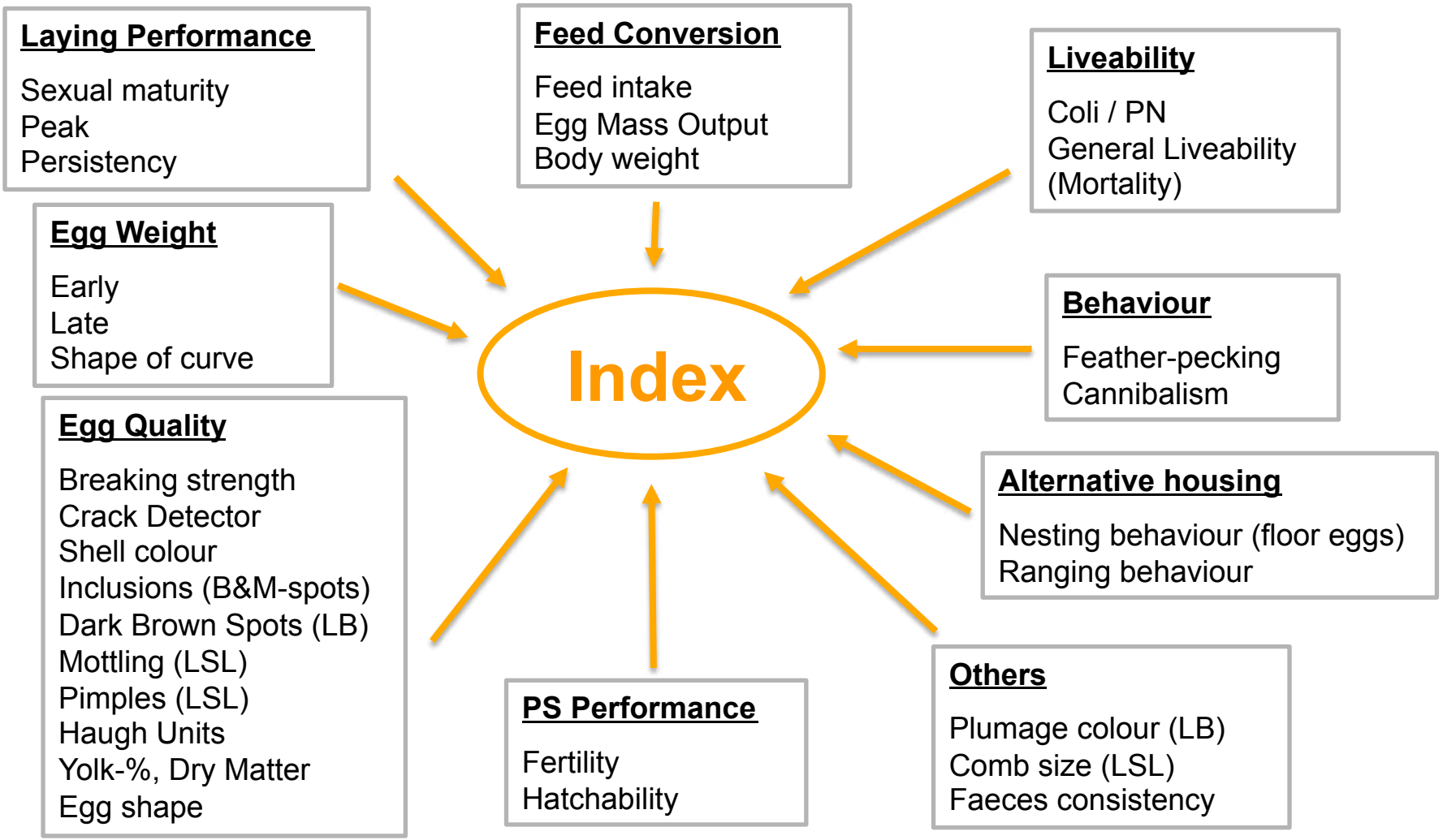

Nutrient (Energy) demand

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Energy requirements:

- Body weight
- Egg mass output (size and numbers)
- Activity

+ 10 to 15 % more energy for activity

compared to cage systems

Maximum no. of saleable nest eggs

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- Clutch length➜ 100 days
- Nutrients for daily egg output and additional activities
- Training during rearing:
  „forced to move“ and utilise all facilities/levels:

  All birds must be forced to

  EAT and **DRINK** on different levels

  If not all are trained:

  Poor body weight, poor plumage,

  increased **MORTALITY!**

Selection for cage-free

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- Nest eggs per hen housed
- Feed efficiency
- Shell quality

+

- Plumage condition
- Feather-pecking
- Cannibalism
- General liveability

Conclusion

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- Further development in individual laying performance tests (in different housing systems and also new traits)
- All these recorded data is taken into account to the breeding program of Lohmann Tierzucht
  - Vitality, performance and egg quality from all housing systems including aviaries

➢ From one generation to the next Lohmann layers show genetic progress in a broad range of selection traits

➢ **The same genotype perform very well in different housing systems if tested and selected in all systems**

The future

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- Perfect feather cover until the end
- Laying sequences of 100/90/80/70/60/50/40 days with 1-day breaks
- Genetic capability for shell formations determine the cycle length
- Feed formulation has to support shell formation and additional energy requirement in aviaries

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Thank you for your attention!
Do you have any questions?