



# 'End the Cage Age' Impact Assessment Farm level results - HENS

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# Objective of the Study

To assess farm-level impacts of phasing out the use of cages in housing laying hens on:

- *Farm and housing systems structure*
  - *Egg production*
  - *Financial performance (Gross Margin = Revenues – Direc Costs)*
  - *Investment needs*
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- To get farmers' opinions
  - To provide input (selected parameters) to the CAPRI model

# Farm level assessment approach - HENS

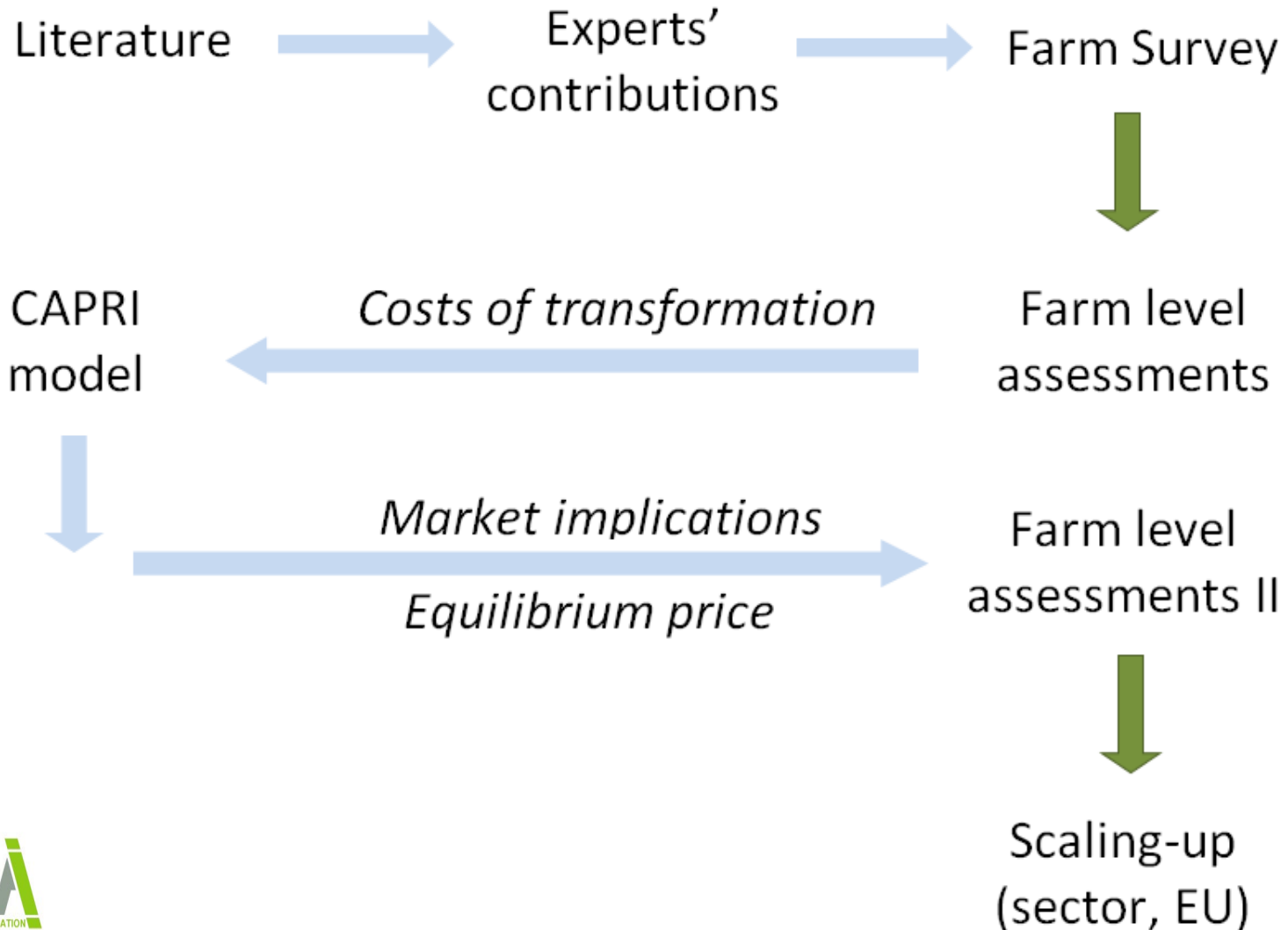
## Housing systems:

- Reference - enriched cages
- **Alternative:** Barn, Free-Range, Organic

## Key assumptions:

- All financial calculations made in **fixed, 2021 prices**
- Number of hens per m<sup>2</sup> in alternative systems reduced in accordance with the EU regulations
- Yields, inputs, costs and prices adjusted to housing systems

# Conceptual Framework



# Farm Survey Results

## Basic characteristics of the sample of farms

Farm cluster	Number of hens/farm (,000)	Egg yield/hen	Fully employed per '000 hens	Average price of eggs - class A [EUR/egg]	Revenues [EUR/hen]
<b>Sample and groups of countries according to geographical location</b>					
East	106,7	303	<b>0,110</b>	0,073	<b>21,71</b>
West	<b>220,5</b>	306	<b>0,075</b>	0,081	<b>24,48</b>
Sample	<b>148,6</b>	<b>304</b>	<b>0,090</b>	<b>0,077</b>	<b>23,22</b>
<b>Clusters according to the flock size (number of hens/farm)</b>					
Small (<30k)	11,6	308	<b>0,192</b>	0,081	27,88
Medium (30-100 k)	62,0	301	0,090	0,079	28,16
Large (>100k)	330,0	305	0,087	0,077	<b>22,41</b>

# Farmers' declarations regarding transition after the ban on enriched cages

HENS	Voliera (Barn)	Free Range	Organic	Exit	Total
<b>Structure of hens %</b>					
Sample	<b>58,7</b>	13,4	0,7	<b>26,9</b>	100,0
EAST	49,5	14,6	1,5	34,4	100,0
WEST	66,3	12,9	0,1	20,7	100,0
<b>Clusters according to the flock size</b>					
Small	29,3	5,58	3,9	<b>61,3</b>	100,0
Medium	<b>55,0</b>	16,7	0,0	28,3	100,0
Large	<b>60,1</b>	13,5	0,7	25,6	100,0

# Key assumptions (examples):

*ratio for enriched cages system = 100*

Parameters	Housing System		
	Barn (Voliera)	Free Range	Organic
Feed consumption per hen	102	104	109
Price of feed	100	100	135
Yield of eggs (number/hen/year)	97	85	85
Energy costs per hen	119	143	143
Labour costs per hen	122	128	133
Price of pullet	100	110	125
Price of eggs	109	135	170
Cost of cages / (buildings) - EUR/hen			
Equipment	16 -22		
Housing	11-16		

# Transition scenarios

**H1<sub>exits</sub> 2035 – "Extreme Exits"**

**H2<sub>no-exits</sub> 2035 – "No Exits"**

**H3<sub>modified</sub> 2035 – "Modified Exits"**

**H4<sub>capri eq.</sub> 2035 – "Capri Market Equilibrium"**

# Transition scenarios

## **H1<sub>exits</sub> 2035 – "Extreme Exits"**

assuming all farmers who declared exit would quit, and hens from their farms would be moved out of production.

## **H2<sub>no-exits</sub> 2035 – "No Exits"**

This is another extreme - all farmers continue production, irrespective of exit declarations, and all hens are moved into alternative systems

# Transition scenarios

## H3<sub>modified</sub> 2035 – "Modified Exits"

„Halfway” between the extremes - considering some exit declarations were because of frustration. Rational – compared to H1 and H 2.

### In scenarios H1 – H3 :

- Average eggs price + 14% higher above the 2021 level based on present price relations;
- No new entries in the sector to increase production to the CAPRI model level in the A2035 scenario

## H4<sub>capri eq.</sub> 2035 – "Capri Market Equilibrium"

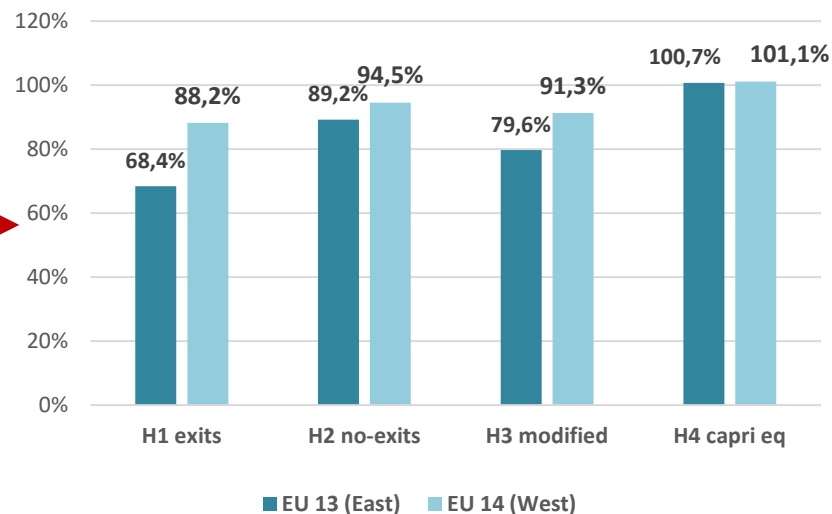
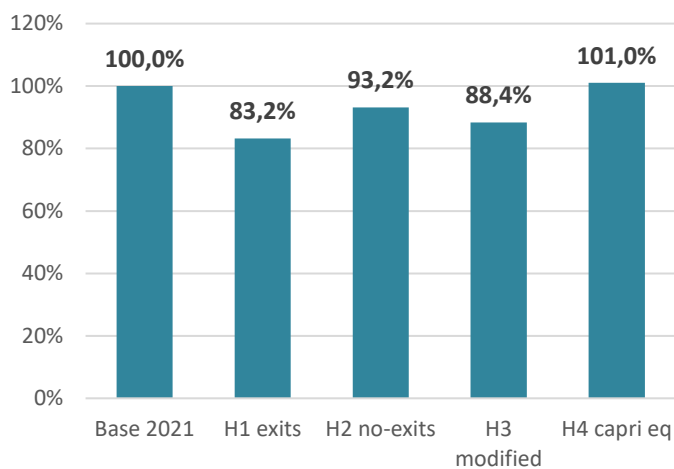
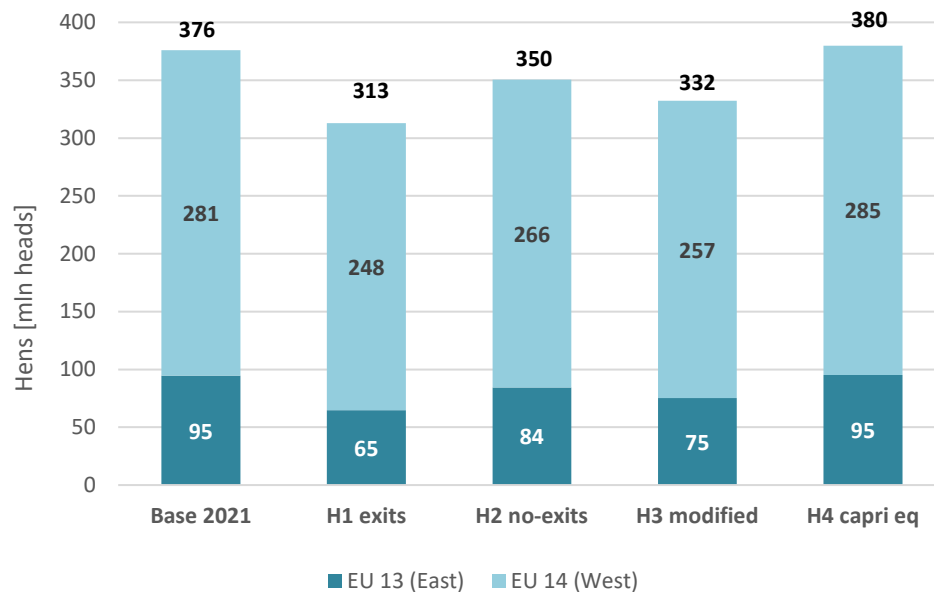
This scenario is a variant of the H3<sub>modified</sub> 2035 with parameters estimated in the CAPRI model:

- average price increase: 3,5%.
- volume of egg production reduced by 1,5% compared to the 2021 situation.
- Investments in additional capacities (buildings and equipment) introduced

# Aggregation to the EU scale

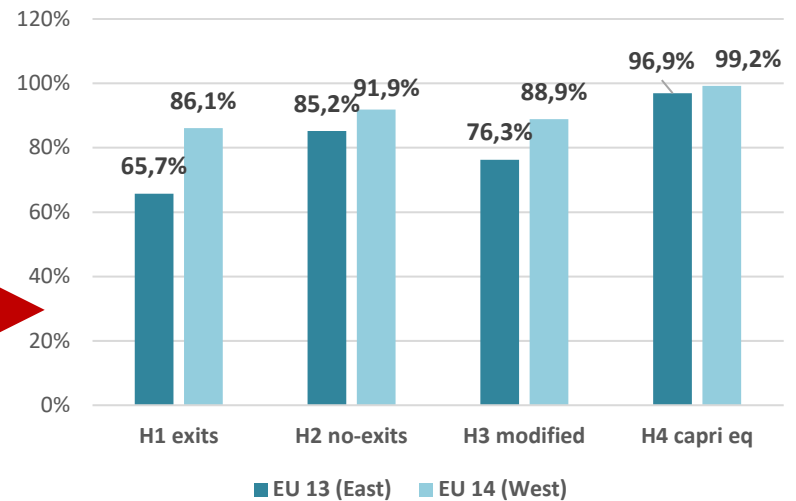
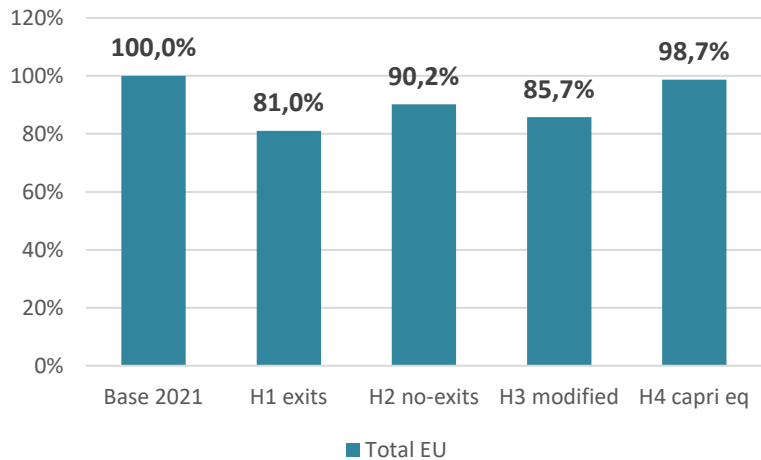
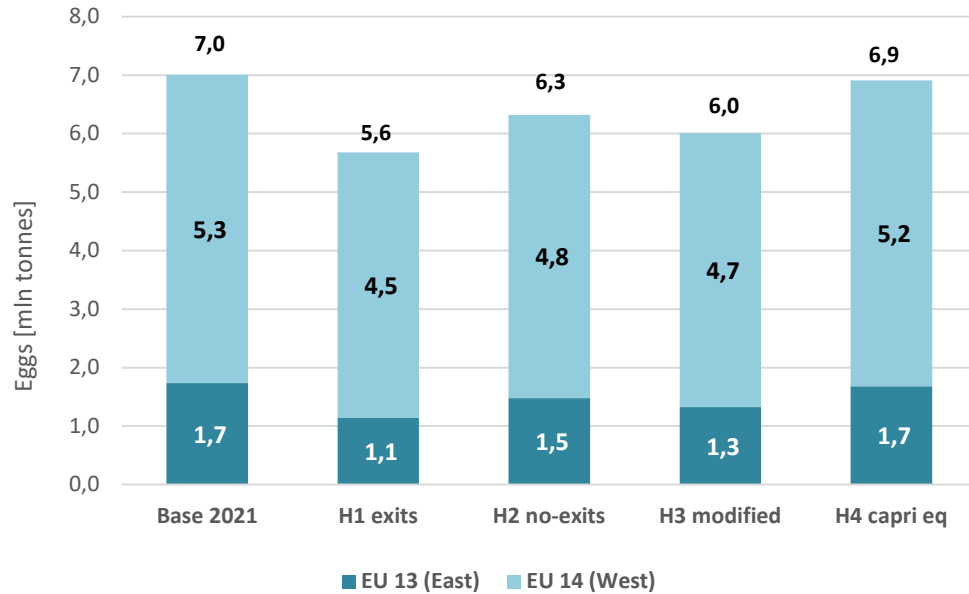
- **EU 2021 statistics:**
  - Total number of hens about 376 milion
  - Still housed in enriched cages - 44,9 % (about 169 milion)
- **All hens kept in cages in 2021 moved to alternative systems (added to the present structure) in proportions resulting from the Farm Survey:**
  - 81,5% - to Barn;
  - 17,5% - to Free Range;
  - 1% - to organic
- **Exits from the sector considered accordingly to the scenario**

**Figure 2. Number of hens** (mln heads) in each assessment scenario

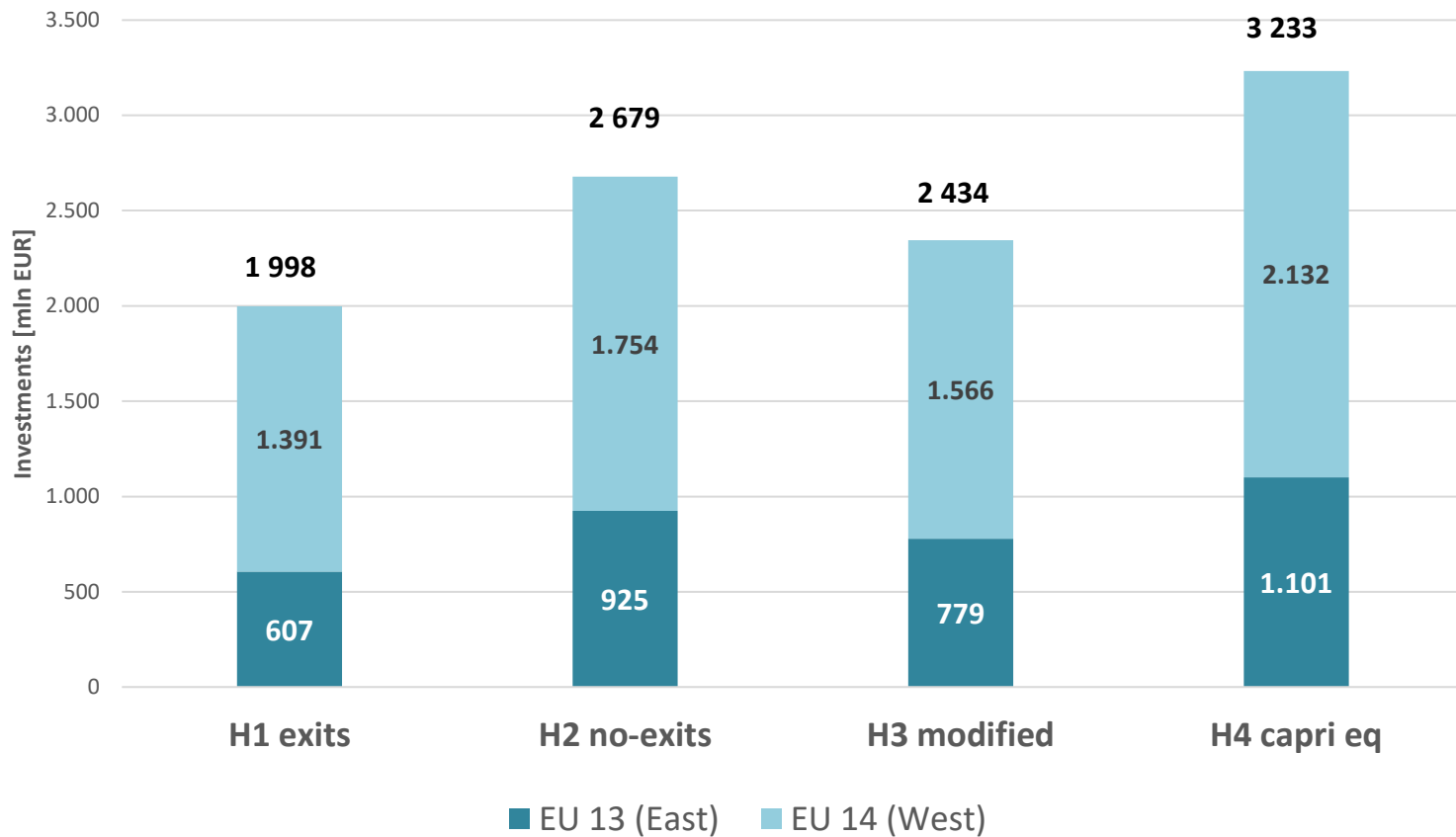


Source: own elaboration

# Figure 3. Production of eggs in each scenario



**Figure 5. Value of investments** (mln EUR) in equipment and buildings in respective scenarios



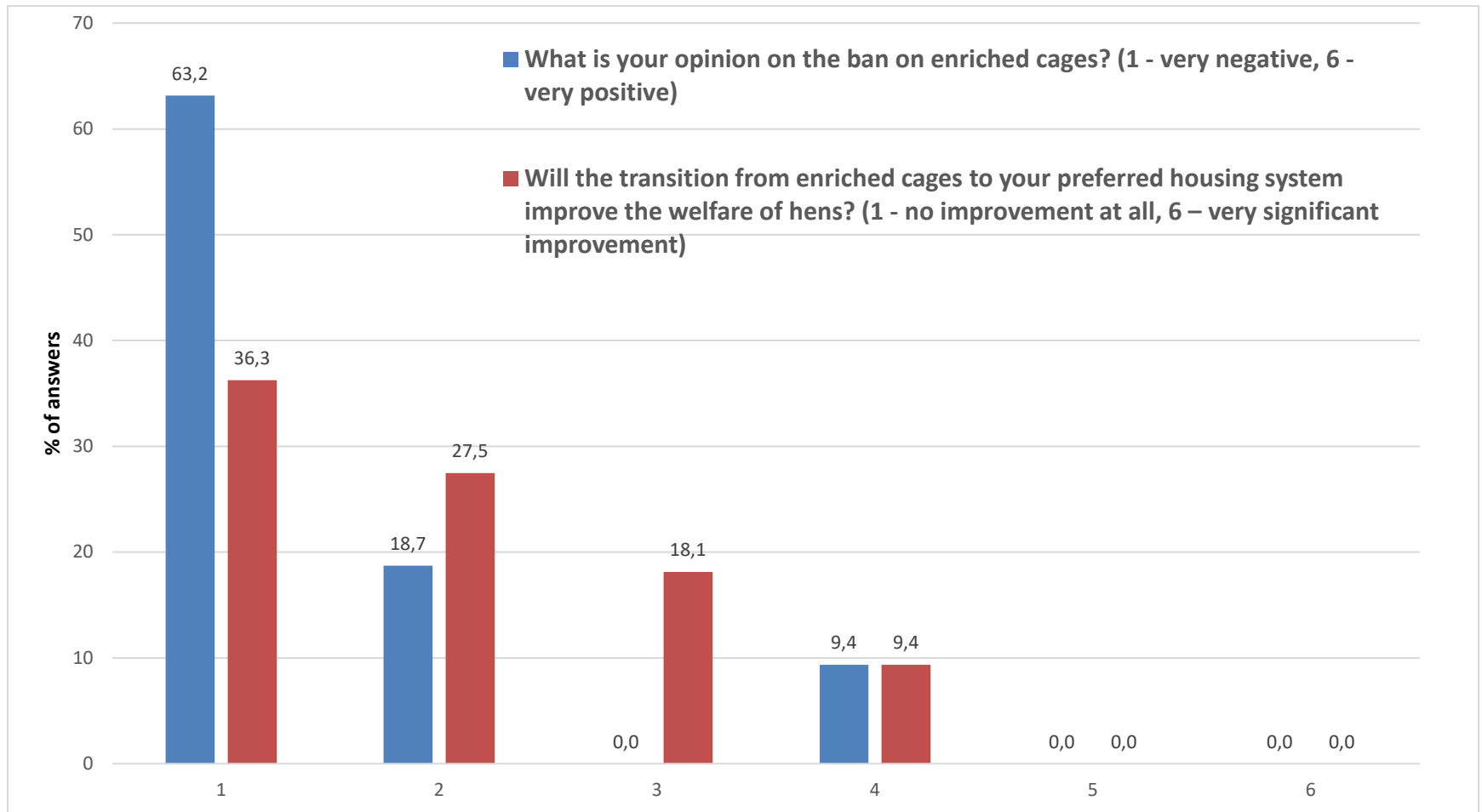
**Table 4. Gross Margins** (Revenues minus Direct costs) – farm survey sample for [EUR/hen/year, fixed 2021 prices]

	Enriched cages	Voliera (Barn)	Free Range	Organic
Item	Value	Value	Value	Value
<b>Revenues</b> EUR/hen	<b><u>23,38</u></b>	<b>23,54</b>	<b>21,06</b>	<b><u>26,19</u></b>
<b>Total Direct Costs</b>	<b><u>20,93</u></b>	<b>21,25</b>	<b>22,28</b>	<b><u>28,53</u></b>
<b>GROSS MARGIN</b> [EUR/hen/year]	<b>2,53</b>	<b>1,33</b>	<b>-2,25</b>	<b>-3,64</b>
<b>GROSS MARGIN</b> [EUR/kg eggs]	<b>0,127</b>	<b>0,070</b>	<b>-0,143</b>	<b>-0,239</b>

**Table 5. Gross Margins** from different housing systems and **scenarios** [EUR/kg eggs]

Scenario	Enriched cages	Barn (Voliera)	Free Range	Organic
Ratio: Enriched cages = 100%				
H1 <sub>exits</sub> – "Extreme Exits"	100	126	135	157
H2 <sub>no-exits</sub> – "No Exits"	100	109	114	129
H3 <sub>modified</sub> – "Modified Exits"	100	116	123	141
H4 <sub>capri eq.</sub> – "Market Equilibrium"	100	54	-209	-282

# What do farmers think?



# Concluding remarks

- The ban on cages will result in a reduction in egg production in the EU;
- The ban will strengthen the concentration trend in the egg production sector. Exits of small scale farmers without successors will be very likely;
- Early adopters may benefit from the transition due to attractive prices. The more hens in alternative systems, the lower future market prices, and farmers' benefits can be;
- Opinion of the farmer: **„Leave it to the market; no need to introduce a legal regulation.“**
- Makes sense to me: the process of changes cannot be stopped, so instead of imposing the law, maybe just incentives could be offered?