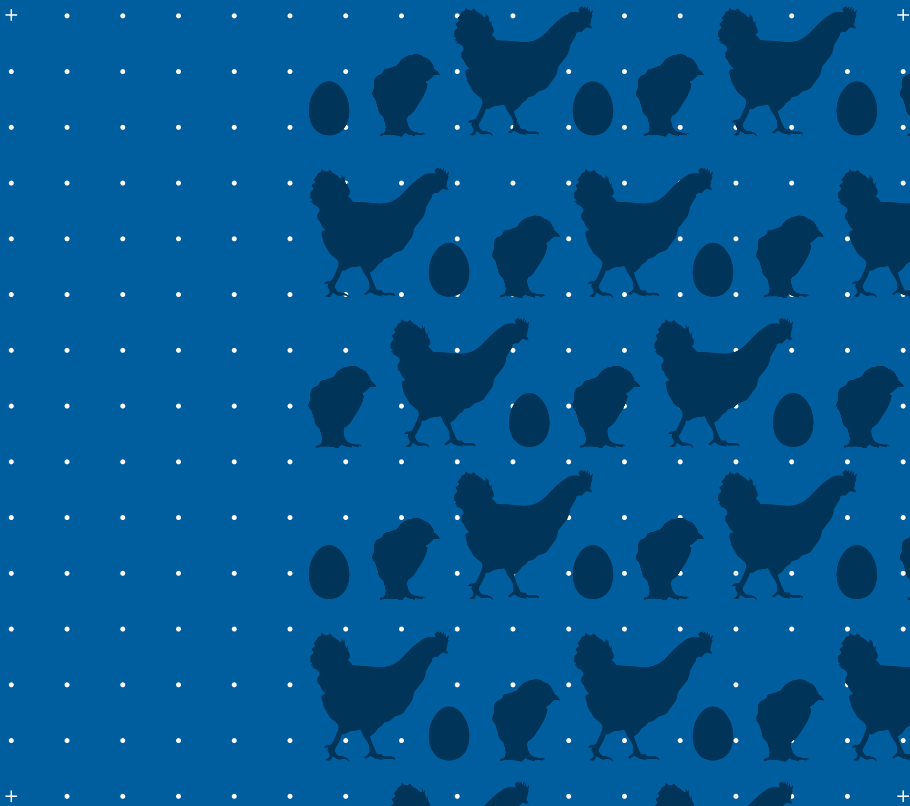


# Hy•D<sup>®</sup>

## for Layers and Breeders

a **DSM** Product



DSM Nutritional Products

Unlimited. **DSM**

# Advantages of Hy•D<sup>®</sup>

## Eggs

- Stronger egg shell
- Better hatchability
- Essential for proper embryonic development
- Used exclusively by embryos

- More potent and effective in providing both classical and non-classical functional benefits of vitamin D<sub>3</sub> under normal as well as stressed conditions

- Significant additional benefits not possible with increased amounts of vitamin D<sub>3</sub>

## Breeders/Layers

- Absorbed differently from vitamin D<sub>3</sub>
- Absorption not compromised by enteric diseases
- Bypasses liver and not affected by hepatic disorders
- Maximises bone development and bone density
- Reduced leg disorders
- Provides optimum levels of active vitamin D<sub>3</sub> metabolite required before and throughout the entire lay cycle
- Efficient maternal transfer to eggs

## Chickens

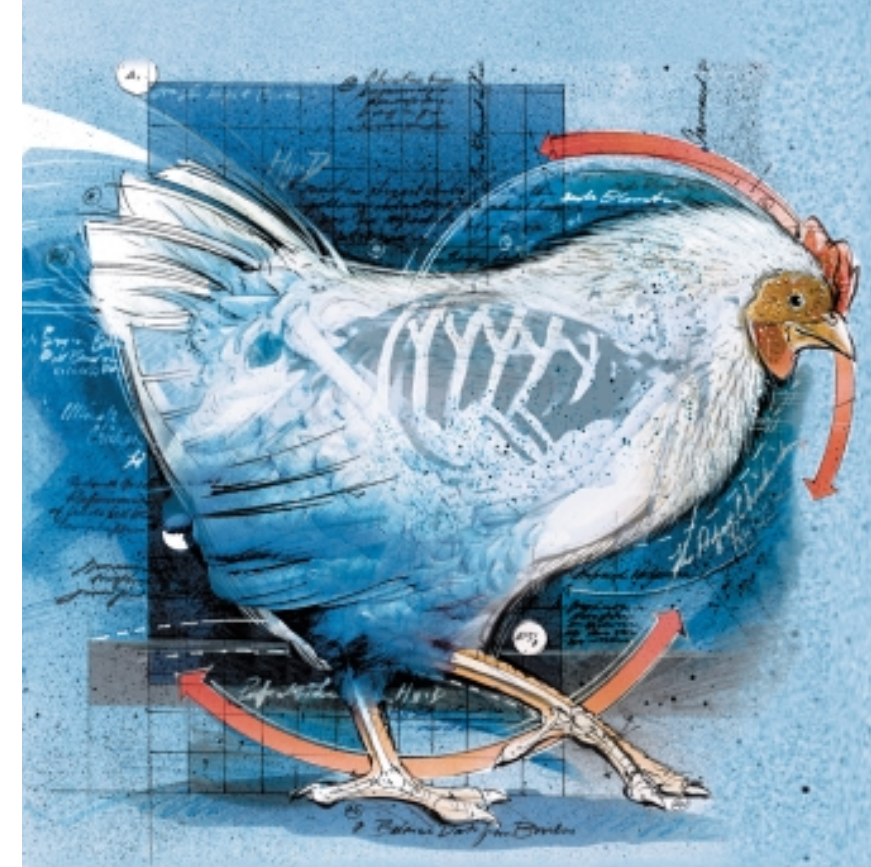
- Better chick quality
- Reduced congenital and field rickets
- Reduced leg disorders

# Problems

- Poor bone development
- Poor bone density
- Early lay mortality
- Osteoporosis / cage layer fatigue
- Egg shell quality problems
- Poor hatchability
- Poor lay persistence

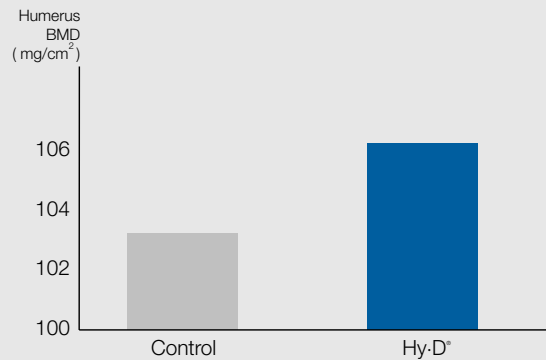
# Product Benefits

- Promotes normal bone development
- Promotes maximum bone density
- Reduces early lay mortality (1-3%)
- Limits osteoporosis / cage layer fatigue
- Improves egg shell quality, less egg shell breakage (-2%)
- Improves hatchability (1-3%)
- Improves lay persistence
  - Breeders - at least an additional of 2-4 hatching eggs per hen housed in a complete lay cycle
  - Layers - at least an additional of 1-6 eggs per hen housed in a complete lay cycle



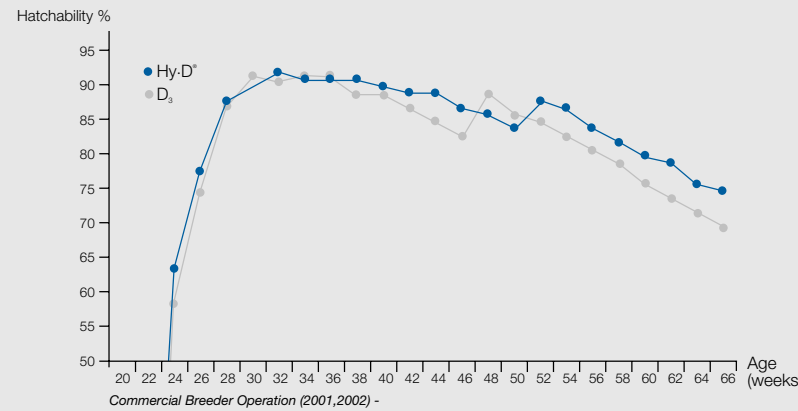
To build better and more eggs or chicks, you must first build a better hen.

## SOLVING PROBLEMS WITH Hy•D®



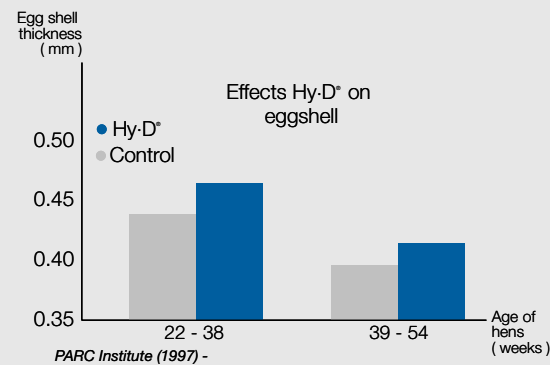
### Maximum Bone Density

Hy•D® improves bone density within the flock, ensuring maximum bone density before the start of lay and maintains bone mass throughout the complete laying cycle. Birds fed Hy•D® are less likely to succumb to sudden death syndrome, calcium tetany and osteoporosis (cage layer fatigue) or develop egg shell quality problems in the later part of the laying cycle.



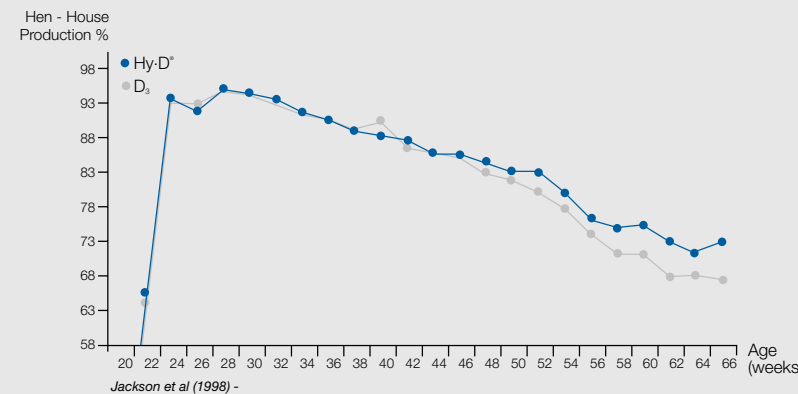
### Improved Hatchability

Hy•D® is essential for embryonic development and therefore improves hatchability.



### Improved Egg Shell Quality

Birds fed Hy•D® produce thicker egg shell and therefore result in better egg shell quality and fewer broken eggs.



### Improved Lay Persistence

Breeders and layers when fed Hy•D® throughout the complete lay cycle produce more hatching eggs/chicks and more eggs, respectively.





# Economics\*

## Reported field benefits

### BREEDERS

Period	Feed per hen (kg)	Hy•D cost per hen (EUR)	Measure	Reported Benefits	Return on Investments
Week 1-PS 69 µg/kg 25-OHD <sub>3</sub>	≅ 9	0.03	Bone	Bone density	
PS-Week 35 69 µg/kg 25-OHD <sub>3</sub>	≅ 16	0.04	Mortality	1-3%	1-3 chicks/HH
Week 36-65 37.5 µg/kg 25-OHD <sub>3</sub>	≅ 30	0.04	Hatchability persistency	1-3% 2-4 HE/HH	2-4 chicks/HH
<b>Total</b>	<b>≅ 55</b>	<b>0.11</b>			<b>1-7 chicks/HH</b>

\* PS = Photo Stimulation

HE/HH=hatching egg/hen housed

## Excellent Return on Investment

### LAYERS

Period	Feed per hen (kg)	Hy•D cost per hen (EUR)	Measure	Reported Benefits	Return on Investments
Week 1-PS* 69 µg/kg 25-OHD <sub>3</sub>	≅ 6	0.02	Bone	Bone density; body weight gain	
PS-Week 45 69 µg/kg 25-OHD <sub>3</sub>	≅ 21	0.06	Mortality	1-3%	1-3 E/HH
Week 46-65 37.5 µg/kg 25-OHD <sub>3</sub>	≅ 15	0.02	Lay persistence; egg shell quality	1-4E/HH ½-2% less breakage	1-6 E/HH
<b>Total</b>	<b>≅ 42</b>	<b>0.10</b>			<b>1-9 E/HH</b>

\* PS = Photo Stimulation

E/HH=egg/hen housed

## Excellent Return on Investment



# Feeding Recommendations\*\*

## BREEDERS

Period	25-OHD <sub>3</sub> (µg/kg)	Hy•D* 1.25% (g/tonne)
Week 1-PS*	37.5-69.0	3-5.52
PS-Week 35	37.5-69.0	3-5.52
Week 36-65	37.5-69.0	3-5.52

\*PS= Photo Stimulation

## LAYERS

Period	25-OHD <sub>3</sub> (µg/kg)	Hy•D* 1.25% (g/tonne)
Week 1-PS*	37.5-69.0	3-5.52
PS-Week 45	37.5-69.0	3-5.52
Week 46-65	37.5-69.0	3-5.52

\*PS= Photo Stimulation

\*\* In the EU, legal maximum of total dietary supply of vitamin D<sub>3</sub> is 3,000 IU/kg in diets for other poultry, and 5,000 IU/kg in diets for chickens for fattening and turkeys.