

Bio D[®]

The Natural Choice for Vitamin D

VITAMIN D

VITAMIN D IS ESSENTIAL FOR POULTRY

Vitamin D plays a **central role in calcium and phosphorus homeostasis** and is fundamental for the proper development and maintenance of bone.

A deficiency can result in poor egg shell quality, decreased egg production and hatching, retarded growth, severe leg weakness, skeletal disorders, diseases of liver and kidney etc.

LONGITUDINAL SECTIONS OF THE PROXIMAL END OF THE TIBIA FROM A NORMAL BROILER AND A BROILER WITH VITAMIN D DEFICIENCY



Normal



Ca/Vit D Rickets

Source: University of Georgia, USA.

VITAMIN D-PATHWAY

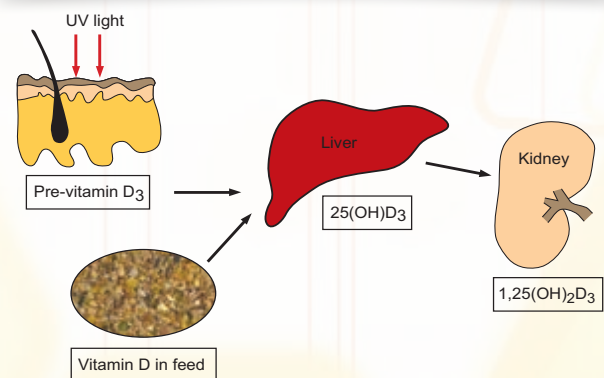
Due to lack of vitamin D in feedstuffs and management systems without direct sunlight, modern farm operations **must provide a supplemental source of vitamin D**.

Cholecalciferol or Vitamin D₃ is biologically inactive and must be converted in a two-step process before it can function.

- In the liver vitamin D₃ is hydroxylated to **25-hydroxyvitamin D₃ (25-OH D₃)**.
- **25-OH D₃** is then transported to the kidney where it is converted to the most active compound **1,25-dihydroxyvitamin D₃ (1,25-(OH)₂ D₃)**.

Once formed in the kidney, (1,25-(OH)₂ D₃) is transported to the intestine, bones or elsewhere in the body.

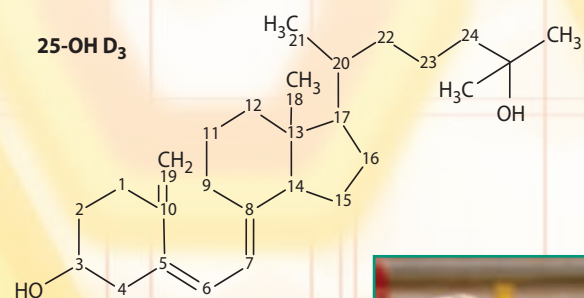
VITAMIN D-PATHWAY



BIO D®: THE NATURAL CHOICE

BIO D® IS A NATURAL SOURCE OF 25-OH D₃

- Bio D® is produced via **bacterial fermentation** from natural ingredients providing **enhanced bioavailability**.
- Bio D® is **metabolically more potent than vitamin D₃** and 1 mg of 25-OH D₃ is equivalent to 80 000 IU vitamin D₃.
- Bio D® is **two times more potent** than the synthetic 25-OH D₃ derivate.



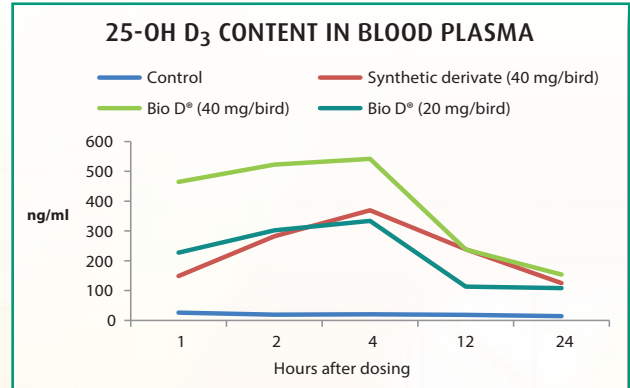
BENEFITS OF BIO D[®]

BIO D[®] INCREASES 25-OH D₃ CONTENT IN BLOOD PLASMA

Measurement of plasma 25-OH D₃ is a reliable indicator for vitamin D status in animals.

Bio D[®] is absorbed at the fastest rate in the first hour and more rapidly utilized.

The bioavailability of Bio D[®] is twice that of the synthetic derivate.



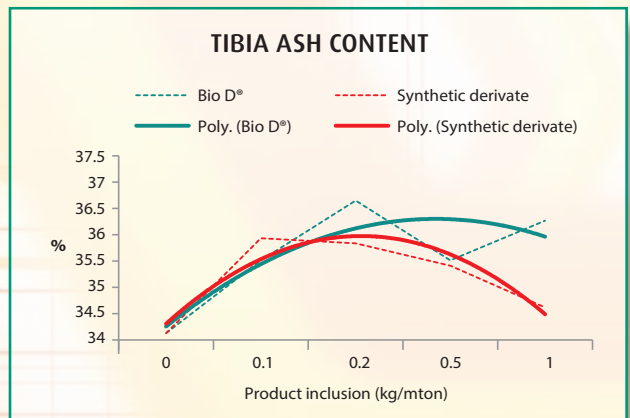
Hens were fasted for 24 hours to reduce baseline plasma 25-OH D₃ levels. The birds were then dosed orally with one treatment. Blood 25-OH D₃ levels were monitored at different time points.

BIO D[®] INCREASES BONE STRENGTH

Tibia ash content is a simple method to determine bone mineralization and is thus an indicator for bone strength.

Supplementing Bio D[®] at the recommended dose of 0.1 kg/t results in the highest rate of bone mineralization.

With Bio D[®], bone mineralization is increased by 20% compared to the synthetic derivate.



100 male broilers, Ross 708, per treatment were divided over 10 replicates. Two different sources of 25-OH D₃ were supplemented from day 0 till day 21 at different dosages. Tibia ash content was analysed on day 21.



DOSE RECOMMENDATIONS

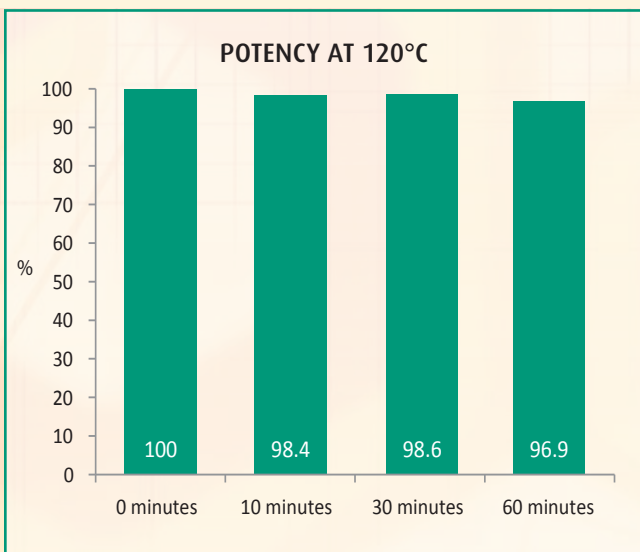
Formulation	Concentration 25-OH D ₃ (mg/kg Bio D®)	Dose recommendation (kg/mton of feed)	
		Chicken	Turkey
Bio D® 100	348.5	0.100	0.132

STABILITY

Bio D® has a shelf-life of 24 months and is **extremely stable** during pelleting.

Bio D® is **safe** for use up to 20x the recommended dose.

Bio D® 100 provides 34.8 mg of 25-OH D₃ per tonne of feed when included at recommended dose rate of 100 g/t.



CONCLUSION

Bio D® is :

- A source of 25-OH D₃
- A natural fermentation product
- Two times more bioavailable than the synthetic derivate
- Extremely stable

Bio D®

The Natural Choice for Vitamin D

