

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 phosphate 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.

VITAMIN D-PATHWAY

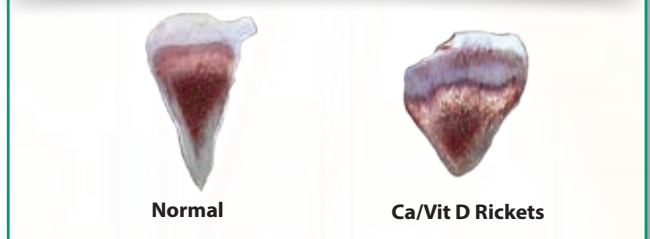
Due to lack of vitamin D in feeds and management systems without direct sunlight, modern farm operations **must provide a supplemental source of vitamin D**.

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)**.

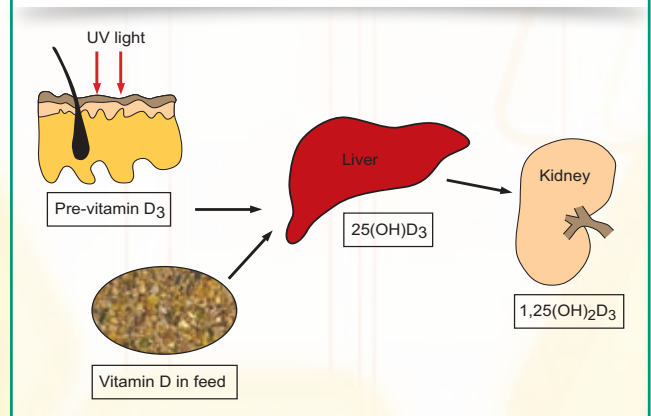
Once formed in the kidney, (1,25-(OH)₂ D₃) is transported to the intestine, bones or elsewhere in the body.

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



Source: University of Georgia, USA.

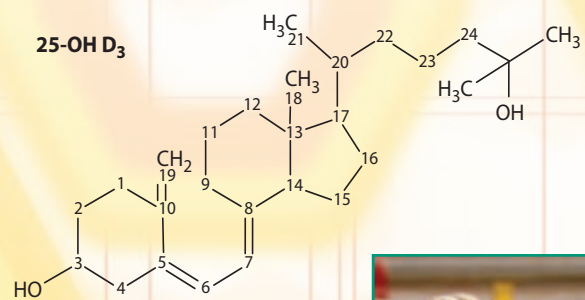
VITAMIN D-PATHWAY



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 25OH D₃ is equivalent to 80 000 IU vitamin D₃.
- Bio D® is **two times more potent** than the synthetic 25-OH D₃ derivate.



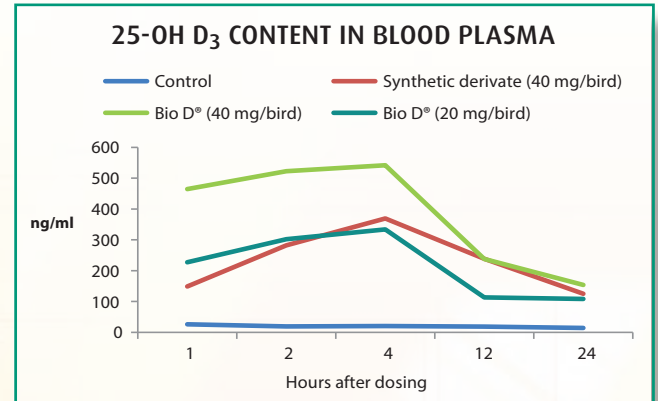
BENEFITS OF BIO D®

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.



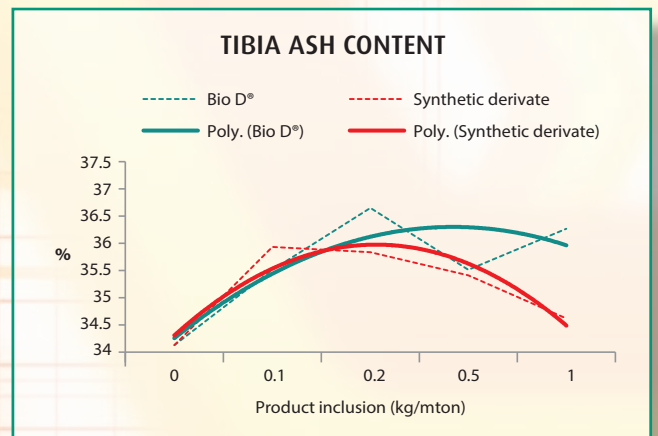
Hens were fasted for 24 hours to reduce baseline plasma 25-OH D₃ levels. The birds were then dosed orally with one treatment. Blood 25-OH D₃ levels were monitored at different time points.

BIO D® INCREASES BONE STRENGTH

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

Supplementing Bio D® at the recommended dose of 0.5 kg/mton results in the highest rate of bone mineralization.

With Bio D® 20% increase in bone mineralization is achieved versus 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

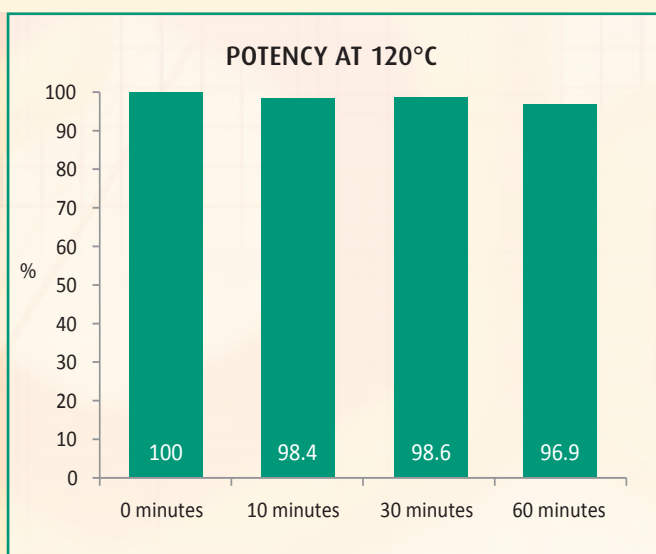
Formulation	Concentration 25-OH D ₃ (mg/kg Bio D [®])	Dose recommendation (kg/mton of feed)	
		Poultry	Turkey
Bio D [®] 500	69.7	0.5	0.66

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.

Typically Bio D 100 is included at 100g per tonne of feed i.e. 34.8mg of 25- hydroxy vitamin D₃



CONCLUSION

Bio D[®] is :

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

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