OUR ONE FOCUS: TRACE MINERAL NUTRITION

Since 1971, Zinpro Corporation has focused on one thing: trace mineral nutrition. Our unique and patented portfolio of Zinpro Performance Minerals is backed by an unmatched catalog of science-based animal performance data.

- We invest far more in animal performance studies than all other organic trace mineral companies combined
- We direct multiple studies to support our performance minerals criteria
- We have more peer-reviewed publications than any other trace mineral company

Zinpro Performance Minerals have consistently shown their benefits in breeder diets throughout the world. In addition, our educational tools and services along with ongoing industry support are focused on animal well-being and overall poultry profitability. Let us help make a difference for your poultry operation. Contact your Zinpro representative or visit us at zinpro.com.br for more information.

IMPORTANCE OF PROPER NUTRITION IN TODAY’S BROILER-BREEDER OPERATIONS

When fed as part of a well-balanced nutrition program, Zinpro Performance Minerals® have been shown to help improve animal performance and deliver a strong return on investment to poultry operations around the world.

Supplementing breeder diets with these proprietary, highly bioavailable forms of organic trace minerals offers many benefits, including egg production, fertility, hatchability, egg quality, progeny performance, immunity, feathering and paw and skin quality.
Role of Performance Minerals in Eggshell Formation

Trace mineral supplementation is essential for proper eggshell quality. A well-fortified poultry diet that includes Availa® ZMC can result in a better, stronger eggshell, as well as improved eggshell quality and egg mass.

Improve Broiler Breeder Performance and Deliver Higher Quality Eggs

Research shows that eggshell weight and thickness are improved when breeders are fed a well-balanced diet that includes highly bioavailable trace minerals.

Enhance Breeder Nutrition for More Hatchable Eggs and More Chicks

Research has shown that when supplemented with Availa® ZMC, breeder hens had a higher number of hatchable eggs, and more chicks were produced per hen-housed.

Deliver Higher Quality Eggs

Research has shown that feeding a well-fortified diet that includes Zinpro Performance Minerals® can have a positive effect on the selenium content of eggs.

Anatomy of a Chicken Egg

- Cuticle: Zinc and manganese for protein synthesis and zinc and iron as pigments components
- Egg White: Zinc and manganese for albumen synthesis
- Yolk: Zinc, manganese, and copper for lipids and protein synthesis/transfer and as reserve for embryonic development
- Embryo Bone Formation

Delay osseous differentiation until the fifth week of embryonic development.

Embryo Bone Formation

Blue = area with cartilage
Dark Red = area with higher mineralization/greater bone formation

Selenium Content in Egg

<table>
<thead>
<tr>
<th>Supplemented Se, ppm</th>
<th>Selenium Content in Egg</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inorganic Availa® Se</td>
<td>Period 1</td>
<td>Period 2</td>
</tr>
<tr>
<td>0.15</td>
<td>0.16 ± 0.04</td>
<td>0.19 ± 0.03</td>
</tr>
<tr>
<td>0.30</td>
<td>0.17 ± 0.02</td>
<td>0.22 ± 0.04</td>
</tr>
<tr>
<td>—</td>
<td>0.20 ± 0.01</td>
<td>0.27 ± 0.08</td>
</tr>
<tr>
<td>0.15</td>
<td>0.18 ± 0.03</td>
<td>0.23 ± 0.08</td>
</tr>
</tbody>
</table>

Effect of Zinpro Performance Minerals on Progeny When Feeding Breeder Hen

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Chicks per Hen-housed</th>
<th>Relative carilage of tibia, % (18 days)</th>
<th>Relative carilage of femur, % (18 days)</th>
<th>Chick length, cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>147.85</td>
<td>76.57</td>
<td>73.36</td>
<td>14.32</td>
</tr>
<tr>
<td>ZMC Isolated Top</td>
<td>149.84</td>
<td>76.67</td>
<td>73.50</td>
<td>14.35</td>
</tr>
<tr>
<td>ZMC on Top</td>
<td>153.81</td>
<td>77.05</td>
<td>73.89</td>
<td>14.38</td>
</tr>
<tr>
<td>Positive</td>
<td>146.12</td>
<td>75.34</td>
<td>73.01</td>
<td>14.30</td>
</tr>
</tbody>
</table>

Reference(s):
- y,z Means within the same column with different superscripts differ (P ≤ 0.05).
- a,b Means within the same column with different superscripts differ significantly (P ≤ 0.05) and a trend (P ≤ 0.07).
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