a little extra for the health of your livestock
Prevention is better than cure.

- Application in all species of livestock
- Safe and economical application
- Optimal modulation of the immune responses after vaccinations
- No residues, no drug resistance
- Improved performance

mentofin®
mother nature’s solution
mentofin® – a little extra for the health of your livestock

A 100 % natural drinking water supplement for fast and reliable prevention and alleviation of vaccine and disease injuries in the modern intensive livestocks. Fully effective in spray application and available in more than 50 countries.

The power of nature for the respiratory health of your livestock.
THE PROBLEM

Respiratory diseases of both bacterial and viral etiologies are a major cause of mortality and economic losses in the commercial poultry and animal industry, due mainly to dyspnea and lack of oxygenated blood. Antimicrobial agents are presently used as the only preventive approach for the prevalent diseases. Concerns of human consumers about the drug residues in the meat and eggs, and the contamination by emerging bacteria with multiple drug-resistant, resulted in awareness campaigns, forcing producers to search for alternative strategies.

Dyspnoea is caused by a partial occlusion of nasal passages with exudates and mucous secretions resulting in poultry and animals that suffer from mild to severe hypoxia. This symptom almost always accompanies both the overt disease as well as, to a certain extent, the decision to apply a preventative antimicrobial program.

The identical situation is applicable to the management of viral respiratory diseases. The only available way in prevention and control of viral diseases is the application of vaccination programs. This approach often leads to undesirable adverse effects such as post-vaccination reactions, and in many instances failure in protection due to many reasons, including interference with maternal antibodies, presence of Mycoplasma and/or immunosuppressive agents, or escape mutants of the field isolates.

THE SOLUTION: Mentofin®

For more than 10 years, Theseo Deutschlands Mentofin® has provided an alternative and supportive strategy for the prevention and alleviation of respiratory problems in the poultry and animal industry. The tens of global scientific trials, in co-operation with renowned academic institutions, documented in scientific journals the anti-inflammatory and anti-microbial activities of Mentofin®. In addition, histopathological studies confirmed the ability of Mentofin® to clear the air passages from occlusions, and thick mucous. The Mentofin® safety is proven in most of the trials, including the assessment of blood biochemical profiles.
The formula
Since time in memorial, extracts from various plants have been used in folklore medicine for healing. Plants like eucalyptus, peppermint and camomile are well known for their impact in healing many respiratory tract syndromes.

Mentofin® is a water soluble concentrate, formulated based on a combination of essential oils of plant origin. The main components are the essential oils of eucalyptus and peppermint.

Eucalyptus oils have anti-inflammatory, antibacterial, antiviral, and anti-fungal activities. They inhibit the cyclo-oxygenase, the main enzyme in the prostaglandin pathway, and thus exhibit an anti-inflammatory property; moreover, they have a cough inhibiting effect. Orally administered, eucalyptus oils are thus used to alleviate cough, throat inflammations, bronchial catarrh and fever.

Their main active component, the 1,8-cineol, stops the release of certain “messenger” molecules, so-called mediators of inflammatory reactions, thus preventing the production and secretion of the mucus. The alcoholic constituent of the peppermint oil, namely the menthol, acts as a local anaesthetic and a disinfectant. Inhaled menthol alleviates laryngitis and bronchitis. Experimentally, Mentofin® has proved effective against the Newcastle Disease Virus, Infectious Bronchitis Virus, Avian Influenza virus, and Mycoplasma gallisepticum.

The emulsifier present in the Mentofin® results in a homogeneous Oil-in-Water emulsion with proven stability and easiness of its dilution for administration in drinking water or as a fine-spray.
**1. Mentofin® field trial Chamber of Agriculture – Northrhine – Westfalia, Germany, 2011**

*Mentofin®* stabilizes the health of Broilers and further improves the Biological Performance?

<table>
<thead>
<tr>
<th></th>
<th>Mortality</th>
<th>Weight</th>
<th>FCR</th>
<th>EEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentofin® group</td>
<td>2,72</td>
<td>2,486</td>
<td>1,55</td>
<td>423</td>
</tr>
<tr>
<td>Control group</td>
<td>3,64</td>
<td>2,495</td>
<td>1,55</td>
<td>417</td>
</tr>
</tbody>
</table>

EEF formula: (100 - mortality) x weight/age (days) x FCR x 100

**Conclusion:** Eventually *Mentofin®* stabilizes the animal health and improves the biological performance.

---

**2. Dr. Eduardo Rodriguez International Prode, Guadalajara, Mexico, 2011**

*Mentofin®* trial in a commercial farm in Nayarit/Mexico. 66,743 broiler chicken under standard commercial condition in four separate buildings.

<table>
<thead>
<tr>
<th></th>
<th>Mortality</th>
<th>FCR</th>
<th>Weight</th>
<th>Performance EEF</th>
<th>Average EEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentofin® group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>8,6</td>
<td>1,998</td>
<td>2,553</td>
<td>278</td>
<td>279,5</td>
</tr>
<tr>
<td>female</td>
<td>4,33</td>
<td>2</td>
<td>2,88</td>
<td>281</td>
<td></td>
</tr>
<tr>
<td>Control group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>10,15</td>
<td>2,13</td>
<td>2,336</td>
<td>235</td>
<td>247,5</td>
</tr>
<tr>
<td>female</td>
<td>5,1</td>
<td>2,08</td>
<td>2,794</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion:** *Mentofin®* improved the average performance (EEF) by 13% compared with the control group.

---

**3. Elie K. Barbour, Ph.D. (Professor at the Faculty of Agricultural and Food Sciences, American University of Beirut, P.O. Box 11-0236, Beirut, Lebanon, and Adjunct Distinguished Professor at King Abdulaziz University, Jeddah, Saudi Arabia) & Taha Kumsani, Ph.D. (Professor at the Biochemistry Department, King Abdulaziz University, Jeddah, Saudi Arabia)**

Production and immunity in *Mentofin®*-treated broilers challenged with velogenic Newcastle disease virus

**Conclusion:** The assigned regimen of *Mentofin®* administration in birds of Treatment 4 resulted in the highest modulation of production performance among challenged birds, associated with the highest seroconversion of both the ELISA and HI titers at one week post challenge, the highest % survivors of contact birds, and comparable feed conversion to that obtained by the control-NDV vaccinated, *Mentofin®* treated, and unchallenged birds.

---

**4. Serpil KAHYA*1, Kaan ÖNAT*2, Evren ERKÖSE*3, Seran TEMELLI*3, Aysegul EYİGOR*2, Kamil Tayfun CARLI*1 (*1 Uludag University, Faculty of Veterinary Medicine, Department of Microbiology, Bursa; *2 Ministry of Food, Agriculture and Livestock, Balıkesir; Uludag University Faculty of Veterinary Medicine, *3 Department of Food Hygiene and Technology, Bursa, Turkey.)**

Effect of *Mentofin®* application on the clearance of Mycoplasma gallisepticum (MG) from naturally infected layer chicken

**Conclusion:** In conclusion, results of this study indicate that *Mentofin®* clearly had an effect on MG clearance from the tracheal epithelium, supported by detection of decline in MG infection in layers.

---

**Figure 1**

Numbers of MG-infected birds detected from Mentofin® group by culture before and after Mentofin® applications in comparison with those of the control group

**Figure 2**

Numbers of MG-infected birds detected from Mentofin® group by rPCR before and after Mentofin® applications in comparison with those of the control group
Evaluation of the safety of the continual use of the product, Mentofin® for spraying of layer chickens. Evaluation of the safety of the continual use of the product, Mentofin® for spraying of broiler chickens.

Conclusion: The collected data is indicating that Mentofin® is able to implement both innate-cell mediated and humoral immune response in chickens. It can be concluded that Mentofin® can immunomodulate cellular and humoral immunity not only in non-immunocompromised but also in immunocompromised chickens. It can counterattack immune deficiency due to IBDV (gumboro).

Determination of the minimum inhibitory concentrations (MIC) of Mentofin® against Newcastle Disease virus with a 15 min contact period.

Conclusion: It can also be concluded that Mentofin® shows strong anti-viral activity against Newcastle Disease virus and that the MIC for Mentofin® with a 15 min contact time was found to be 0.5%. It can also be concluded that even at a 0.125% dilution of Mentofin® that anti-viral activity was detected.

Evaluation of the Pathology and Histology of the Respiratory System in Mentofin® treated Broilers Following a Challenge with Mycoplasma gallisepticum and/or H9N2 Influenza Virus.

Conclusion: The Mentofin® treatment resulted in a significant decrease (P< 0.05) in tracheal deciliation in MG and MG/H9N2 challenged birds, a significant decrease in tracheal goblet cells degeneration in MG and MG/H9N2 challenged birds, a significant decrease in tracheal mucous accumulation in MG challenged birds and a significant decrease in heterophil infiltration in MG/H9N2 challenged birds. In addition, the Mentofin® treatment reduced the frequency of gross lesions in comparison to Mentofin® deprived birds namely, conjunctivitis, tracheitis, airsacculitis and lung congestion.

Effect of Mentofin® on serum biochemistry and antibody response of broiler to avian influenza H9N2

Conclusion: According to analysis of serum biochemistry, it was revealed that Mentofin® provide protection to the liver in case of viral disease. We confirmed again the immunostimulant effect of Mentofin® on improving vaccination titers against viral diseases (Avian Influenza H9N2 in this experiment).

Immunomodulating effect of Mentofin® in immunocompromised and non-immunocompromised chickens.

Conclusion: The collected data is indicating that Mentofin® is able to implement both innate-cell mediated and humoral immune response in chickens. It can be concluded that Mentofin® can immunomodulate cellular and humoral immunity not only in non-immunocompromised but also in immunocompromised chickens. It can counterattack immune deficiency due to IBDV (gumboro).
APPLICATION

General Prevention
Mentofin® can be applied via the drinking water for the regular prevention of respiratory problems in all kinds of livestock. This method is safe, economical and assists in the reduction of undesirable pharmacological active substances.

Special Prevention
Mentofin® is the ideal tool for prevention of respiratory problems related to post vaccination reactions. Mentofin® should be applied 2 – 3 days after administration of both, live and inactivated vaccines against Newcastle Disease, Infectious Bronchitis, Avian Influenza, Infectious Laryngotracheitis, etc.

Aerial Spray
Mentofin® can also be applied via the spray method using conventional spraying equipment with a fine nozzle or preferably an aerosol generator. This method is recommended for quick relief of respiratory symptoms.

PRECAUTIONS

Avoid the simultaneous use of Mentofin® with live vaccines. Withdraw Mentofin® treatment minimum two days prior to administration of live vaccinations and withhold it for 2 to 3 days post live vaccination administration.

Avoid overdosing or underdosing by calculating the actual water consumption at different ages of the animals.

TECHNICAL INFORMATION

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>yellowish liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1 g/cm³</td>
</tr>
<tr>
<td>pH-value 1% dilution</td>
<td>approx. 7</td>
</tr>
</tbody>
</table>

DOSSING

<table>
<thead>
<tr>
<th>USE</th>
<th>DILUTION &amp; DOSING</th>
<th>ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drinking water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to overcome post vaccination reactions</td>
<td>Use 200 ml of Mentofin® in 1.000 l of drinking water.</td>
<td>2 to 3 days after NDV/IB vaccination (24 h administration/day)</td>
</tr>
<tr>
<td></td>
<td>as above</td>
<td>day 26 – 28/12 h/day</td>
</tr>
<tr>
<td></td>
<td>Apply via batch treatment or dosing system</td>
<td></td>
</tr>
<tr>
<td>against respiratory problems at the end of the production cycle</td>
<td>Use 200 ml of Mentofin® in 1.000 l of drinking water.</td>
<td></td>
</tr>
<tr>
<td>General prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drinking water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventive aerial spray</td>
<td>Dilute 100 ml of Mentofin® in 5 l of water and spray the 5 l over 10.000 birds, 0.5 ml per bird (use fine nozzle)</td>
<td>twice weekly or if needed</td>
</tr>
</tbody>
</table>

12-00-847/10/18

THESEO Deutschland GmbH
Kolpingstraße 4, 49835 Wietmarschen, Germany
Tel. +49 59 25/99 33-0, Fax +49 59 25/14 33
E-mail: info@ewabo.de, www.ewabo.com

MENTOFIN® is a registered trademark. Your Distributor

mother nature’s solution