Flavomycin® is specifically developed as a performance-promoting feed additive. It is a microflora manager fortifying a healthy balance of the gut bacteria resulting in significantly improved weight gain and feed conversion. Moreover, the stabilizing effect of Flavomycin® reduces shedding of food borne pathogens, securing public health.

There are no safety concerns and no residual concentrations are detectable in the tissues of food animals when supplementing with Flavomycin®.

Administration of Flavomycin® decreases antibiotic resistance. Acquired resistance to Flavomyin® itself has never been reported and the molecule has no therapeutic use in humans.

Flavomycin® is a 100% natural feed additive, produced by aerobic fermentation of Streptomyces ghanensis. It is the only phosphorous containing glycolipid antibiotic exclusively used in animal feed. The large structure of the molecule, 1582 g/ml, prevents absorption by the gut and ensures an equal activity along the gastro-intestinal tract.
1. **ANTIMICROBIAL ACTIVITY**

Flavomycin® inhibits the transglycosylation step of peptidoglycan biosynthesis, a structural component of the bacterial cell wall. This causes accumulation of cell wall intermediates, and leads to lysis and cell death.

Flavomycin® is active against a broad spectrum of Gram-positive bacteria. Susceptible Gram-negative organisms are Pasteurella, Brucella and those (particularly *Salmonella spp* and *E. coli*) that carry resistance plasmids.

2. **ENFORCEMENT OF NATURAL DEFENSE SYSTEM**

Flavomycin® spares beneficial bacteria. Those resident bacteria prevent colonization by pathogens through adhesion to the gut epithelium. This phenomenon is called competitive exclusion.

In addition, the indigenous flora produces volatile fatty acids and antibacterial substances such as lactic acid.

3. **IMPROVEMENT OF DIGESTION**

Enteric pathogens can disrupt the integrity of the intestinal wall causing impaired digestion. Flavomycin® directly inhibits those pathogens and secures a healthy microflora. The result is an improved gut morphology ensuring optimal digestion.
**FLAVOMYCIN® DECREASES ANTIBIOTIC RESISTANCE**

Antibiotic resistance can be acquired via transfer of extrachromosomal DNA located on plasmids. Plasmids pass from one bacterium to another through bacterial conjugation.

Flavomycin® decreases antibiotic resistance by

1. Reducing the conjugation transfer of plasmids
2. Selective action against plasmid containing bacteria

Flavomycin® significantly suppresses the increase and dissemination of multiresistant *E. coli* in the intestinal flora of fattening pigs.

**NO RESISTANCE AGAINST FLAVOMYCIN®**

- There is no acquired resistance against Flavomycin®.
- Exposure of bacteria to Flavomycin® does not result in cross-resistance to other antimicrobials or in co-selection of resistant strains.
- The unique mode of action of Flavomycin® is not shared by any agent used in human medicine.

One hundred and twelve fattening pigs were inoculated with three multiresistant nonpathogenic *E. coli* strains. Flavomycin® was added to the feed at a dosage of 9 ppm. At the start of the study and 12 weeks later faecal samples were taken and analysed for the number of resistant *E. coli*.
EFFICIENTSAFE

TECHNICAL PERFORMANCE

Since the discovery of the molecule in 1960, Flavomycin® has been used worldwide to improve weight gain and feed utilization in food-producing animals. A meta-analysis combining the results of numerous scientific trials and practical studies, proves the success of Flavomycin® (Chi square test: P<0.001).

<p>|</p>
<table>
<thead>
<tr>
<th>Piglet</th>
<th>Pig</th>
<th>Sow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of trials</td>
<td>16</td>
<td>122</td>
</tr>
<tr>
<td>Dosage used (ppm)</td>
<td>10-20</td>
<td>5-10</td>
</tr>
<tr>
<td>Average daily gain (% of control)</td>
<td>109.4</td>
<td>104.9</td>
</tr>
<tr>
<td>Avg. feed conversion (% of control)</td>
<td>96.6</td>
<td>96.5</td>
</tr>
<tr>
<td>Postnatal mortality (% of control)</td>
<td></td>
<td>58</td>
</tr>
</tbody>
</table>

**unweaned piglets

control treatment can be blank feed but most trials have a control containing an antimicrobial growth promoter or another feed additive.

TECHNICAL RESULTS IN PIGS VERSUS A CONTROL TREATMENT

FOR HUMANS

- Consumption of food contaminated with zoonotic agents is a serious threat for public health.
- Flavomycin® has an antagonistic effect on food borne pathogens by stabilizing the microflora and lowering the intestinal pH.
- Pigs supplemented with Flavomycin® show a shorter excretion period of Salmonella and E. coli.
- Moreover, Flavomycin® reduces the number of animals carrying pathogens at the time of slaughter.

FOR ANIMALS

- Flavomycin® is not absorbed by the gastro-intestinal tract and is excreted as an intact molecule.
- No tissue residues were found in pigs after feeding 20 times the highest approved dosages of Flavomycin® for more than 5 months.
- Flavomycin® has a 0 days withdrawal period.

FOR THE ENVIRONMENT

- Flavomycin® in the soil is rapidly degraded by natural micro-organisms.
- Plants do not absorb Flavomycin®.

Adding Flavomycin®

- Improves the equilibrium of the intestinal microflora
- Increases vitality and well-being
- Reduces digestive problems

Economic benefits

- Increased growth rate
- Reduced feed expenditure
- Decreased mortality
- More homogeneous growth
PRODUCT CHARACTERISTICS

- Flavomycin® is a feed additive marketed as a free-flowing premix.
- Flavomycin® consists of a spray-dried granular fermentation product.
- The homogenous distribution in the premixes gives no risk of segregation.
- Flavomycin® is compatible with any other feed additive or veterinary medicine.

STABILITY

Flavomycin® has a shelf-life of 24 months and is extremely stable. The common processing methods for premixes and feed including conditioning, pelleting, expansion or extrusion have no influence on the stability and recovery of Flavomycin®.

DOSAGE RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Maximum age</th>
<th>Flavomycin® 40 (grams per ton)</th>
<th>Flavomycin® 80 (grams per ton)</th>
<th>Flavophospholipol (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
<td>250 - 625</td>
<td>125 - 312.5</td>
<td>10 - 25 (only in milk replacers)</td>
</tr>
<tr>
<td>6 months</td>
<td>50 - 500</td>
<td>25 - 250</td>
<td>2 - 20</td>
</tr>
</tbody>
</table>

CONCLUSION

Flavomycin® is:

- **EFFECTIVE**
  - Increases weight gain
  - Better feed utilization

- **SAFE**
  - Improves public health
  - No withdrawal period
  - Ecological safe

- **UNIQUE**
  - Decreases antimicrobial resistance
  - No resistance against Flavomycin®

References available on request

http://www.huvepharma.com