Hepabial +
Add the missing piece to the liver’s metabolism
**The liver**

**ROLE**
The liver is the metabolism central laboratory in animals. Its reserve capabilities are absolutely essential in animals with high production level.

- Fat metabolism (Fatty acid synthesis, fat storage control)
- Carbohydrate metabolism (blood sugar regulation)
- Bile secretion (helps with lipids and carbohydrates absorption)
- Protein metabolism (Protein and urea synthesis)
- Iron and vitamin storage

**CONSEQUENCES OF LIVER DYSFUNCTION**

- Liver toxicity
- Mobilisation of reserves metabolised by the liver
- Kidney toxicity

Signs observed:
- Reduced appetite
- Drop in laying rate
- Reduced immune defences
- Reduced ADG
- Stress sensitivity
- Increased mortality

To offset these different critical stages during the rearing process, it is necessary to provide support for the animal’s liver and kidney functions.

Supplementing the diet with Hepabial+ makes it possible to overcome the energy deficiency linked to all liver dysfunctions.

**Hepabial+**

**Add the missing piece to the liver’s metabolism**

**An original targeted formula**

- L-carnitine (10 g/L)
  - Transports long chain fatty acids
  - Allows storage / release of fats in case of high energy needs
- Choline (150 g/L)
  - Allows bile to ensure fat digestion
- Artichoke, Black radish, Fumitory, Dandelion
  - Stimulates appetite
  - Encourages bile secretion
  - Stimulates toxins elimination
- Sorbitol (400 g/L)
  - Encourages bile production and secretion
  - Stimulates liver activity

**Improved energy metabolism**

A unique combination of ingredients selected to stimulate energy metabolism and to optimize overall performances of animals.

**Special features of Hepabial+**

- * Diuretic: substance which leads to increased urine secretion
- ** Lipotropic: substance which adheres to fat or facilitates its transformation
- *** Choleretic: substance which facilitates bile secretion, cholagogic: substance which facilitates bile evacuation
**TRIAL N°1**

+ 6% net margin* for breeder  
- 27% mortality

**PROTOCOL**

2 buildings with 21300 one-day-old broiler chicks in each one  
- Control group: no supplement  
- Treated group: 1 ml of Hepabial+ / L of drinking water for 2 days in every feed change periods

**RESULTS**

**Effect of Hepabial+ supplement on mortality, average daily gain and body weight (trial august 2008).**

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Treated group</th>
<th>Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>440</td>
<td>320</td>
<td>-27%</td>
</tr>
<tr>
<td>ADG (g)</td>
<td>55.1</td>
<td>57.1</td>
<td>+3.6%</td>
</tr>
<tr>
<td>Body weight (kg)</td>
<td>2.07</td>
<td>2.15</td>
<td>+3.9%</td>
</tr>
</tbody>
</table>

**CONCLUSION**

The calculation of breeder’s economic results for his two buildings shows a net margin improvement* of 6% with Hepabial+ at each feed change period.

* net margin = income - (feed cost + chick cost + Hepabial+ cost + other costs)

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**TRIAL N°2**

+ 28% margin* thus +1.4 € / m²  
- 15% mortality

**PROTOCOL**

4 buildings with a total of 99 500 one-day-old broiler chicks  
- 2 control buildings: no supplement  
- 2 treated building: 1 ml of Hepabial+ / L of drinking water for 2 days in every feed change periods

**RESULTS**

**Effect of Hepabial+ supplement on feed conversion ratio, mortality, average daily gain and body weight. (trial august 2008)**

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Treated group</th>
<th>Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCR</td>
<td>1.98</td>
<td>1.83</td>
<td>-7.3%</td>
</tr>
<tr>
<td>Mortality</td>
<td>504</td>
<td>429</td>
<td>-14.88%</td>
</tr>
<tr>
<td>ADG (g)</td>
<td>52.6</td>
<td>52.1</td>
<td>-0.94%</td>
</tr>
<tr>
<td>Body weight (kg)</td>
<td>2.12</td>
<td>2.11</td>
<td>-0.47%</td>
</tr>
</tbody>
</table>

**CONCLUSION**

On average, supplementing broilers with Hepabial+ at feed change periods allows to improve breeder’s margin of more than 28% thus an economic gain of 1.40€ / m².

* net margin = income - (feed cost + chick cost + Hepabial+ cost)
Efficacy of Hepabial+ with broilers whose feed is contaminated with mycotoxins

- **Increased body weight gain**: + 3.3%
- **Decreased feed conversion ratio**: - 6.7%
- **Improved liver function**
- **Improved immune response**

**PROTOCOL**
- 360 broilers divided into 6 groups
- Dosage: 1ml of Hepabial+ /L of drinking water for the first 3 days of life then 3 days at each feed change period (D1-D3, D15-D17, D29-D31)

**RESULTS**

1) **Zootechnical performances**
- **Body weight gain (g)**
  - No mycotoxins: + 0.64%
  - Aflatoxin and ochratoxin: + 3.26%
  - Ochratoxin: + 2.85%
- **Feed consumption (g)**
  - No mycotoxins: - 4.55%
  - Aflatoxin and ochratoxin: - 3.87%
  - Ochratoxin: - 4.18%
- **Feed conversion ratio**
  - No mycotoxins: - 5.23%
  - Aflatoxin and ochratoxin: - 6.69%
  - Ochratoxin: - 6.87%

- **Compensates for loss of growth caused by the mycotoxins**
- **Reduces feed consumption even with uncontaminated feed**
- **Supplementing the diet with Hepabial+ improves the feed conversion ratio**

2) **Blood parameters (levels of liver enzymes and bile acids)**

- **Blood AST** concentration (U / L)
  - No mycotoxins: - 5.29%
  - Aflatoxin and ochratoxin: - 11.85%
  - Ochratoxin: - 25.71%
- **Blood ALT** concentration (U / L)
  - No mycotoxins: - 6.1%
  - Aflatoxin and ochratoxin: - 5.9%
  - Ochratoxin: - 31.77%
- **Blood bile acids concentration (µmol/L)**
  - No mycotoxins: - 6.1%
  - Aflatoxin and ochratoxin: - 9.16%
  - Ochratoxin: - 41.25%

**CONCLUSION**
- Hepabial+ supplement counteracts the negative effects of mycotoxins
**Effectiveness of Hepabial+ in laying hens**

- Laying curve maintained above strain standard: +5% egg production during treatment period
- Reduction of feed consumption: -6% during the period
- Appetite remains unchanged during product distribution

**PROTOCOL**

Evaluating the benefits of a Hepabial+ supplement in hens during laying
- 1 test building: 31,950 laying hens treated.
- 4 treatments: Hepabial+ (3 to 4 weeks apart)
- Dose: 1ml/l of drinking water for 5 days.
- Treatment 1: W58 / Treatment 2: W61 / Treatment 3: W64 / Treatment 4: W68

**RESULTS**

**Effectiveness of Hepabial+ at 70-80 days in beef calves during the slowdown in consumption**

- Improvement in liver function
  - -30% on ASAT level (Aspartate Aminotransferase)
  - -54% on ALAT level (Alanine Aminotransferase)
- Improved appetite
- Improved digestibility

**PROTOCOL**

SYSTEMATIC TREATMENTS WITH HEPABIAL+

- 304 calves treated (2 batches)
- Distribution of 5ml of Hepabial+ per feed per treated calf for between 5 and 70 days.
- The following were noted:
  - Calves’ appetite
  - Digestibility (consistency of feces)
  - Blood parameters (ASAT, ALAT)

- Start: added to milk to improve consumption
  - 5-7 day treatment
- At the 70-80 day period: higher concentrate in feed: calves full up
  - 8-10 day treatment
- Isolated treatments: unexpected drop in consumption (heat)
  - 2-3 day treatment
**Effect of supplementing sows with Hepabial+ at birth**

+ 6% body weight gain of piglets (statistically significant difference)

### Protocol

86 sows in trial, divided into 2 groups:
- Control group: no supplement (30 sows)
- Treated group: either 1 ml of Hepabial+ /L of drinking water during the 5 days after birth (37 sows) or 1 ml of Hepabial+ /L of drinking water during 5 days at the 3rd week of lactation (19 sows)

The two treated groups are not differentiated because there is no statistically significant difference between them.

### Results

**Evolution of piglets average body weight (trial 2008)**

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Treated group</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth body weight (kg)</td>
<td>1.77</td>
<td>1.91</td>
<td></td>
</tr>
<tr>
<td>Weaning body weight (kg)</td>
<td>7.13</td>
<td>6.81</td>
<td></td>
</tr>
</tbody>
</table>

**Evolution of treated group performances in comparison with control group (trial 2008)**

- Number of piglets / litter: 12.8 vs 12.6 (NS)
- Body weight of piglets at birth: 1.9 vs 1.8 (NS)
- Body weight of piglets at weaning: 6.9 vs 7.1 (NS)
- Body weight gain of piglets during lactation: 5 vs 5.3 (*

* Represents statistically significant effects: p<0.05
NS: no significant: p>0.05

**Conclusion**

Supplementing with Hepabial+ after birth allows to support sows appetite, a better use of feed, leading to a faster growth of piglets.

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**Effect of supplementing sows with L-carnitine during pregnancy and lactation**

**Improved reproductive performances**

Faster growth of piglets

### Protocol

127 sows in trial of which 40 gilts. All the animals are divided into 2 groups:
- Control group: no supplement
- Treated group: 125 mg of L-carnitine / day / sow during pregnancy
  250 mg of L-carnitine / day / sow during lactation

### Results

**Performances evolution of treated group in comparison with control group**

<table>
<thead>
<tr>
<th></th>
<th>Litter weight at birth</th>
<th>Piglets weight at birth</th>
<th>Body weight gain during lactation</th>
<th>Litter weight at weaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gilts</td>
<td>+8%</td>
<td>+9%</td>
<td>+12%</td>
<td>+14%</td>
</tr>
<tr>
<td>Sows</td>
<td>+7%</td>
<td>+6%</td>
<td>+4%</td>
<td>+10%</td>
</tr>
</tbody>
</table>

Differences between the control and the treated groups are more significant with gilts.

**Conclusion**

A supplementation with L-carnitine during pregnancy and lactation periods improves reproductive performances of sows and allows a faster growth of piglets.

Hepabial+ The personalized solution

<table>
<thead>
<tr>
<th>Broilers</th>
<th>Turkeys</th>
<th>Pullets</th>
<th>Laying hens</th>
<th>Forced-feeding ducks</th>
<th>Muscovy ducks</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lactation preparation (before giving birth)</th>
<th>Lactation peak (ingestion support)</th>
<th>Feed transition</th>
<th>Heat stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breeder (X)</td>
<td>Fattening rabbits (X)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaning</th>
<th>Lactation support</th>
<th>Feed blockage</th>
<th>Heat stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sows (X)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piglets</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fattening pigs</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaning</th>
<th>Acetosis</th>
<th>Feed blockage</th>
<th>Heat stroke</th>
<th>Hepatic overload after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fattening calves</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Instructions for use:**

Hepabial+ is used diluted in drinking water.

**Poultry:** 1 ml / L of drinking water for 5 to 10 days

**Calves during fattening:** 1 ml / L of liquid feed for 5 to 10 days

**Other species:** 1 ml / L of drinking water for 5 to 10 days