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## HOT TOPIC - Salmonellosis (non-typhoidal)

### 热门话题 - 沙门氏菌病 (非伤寒式)

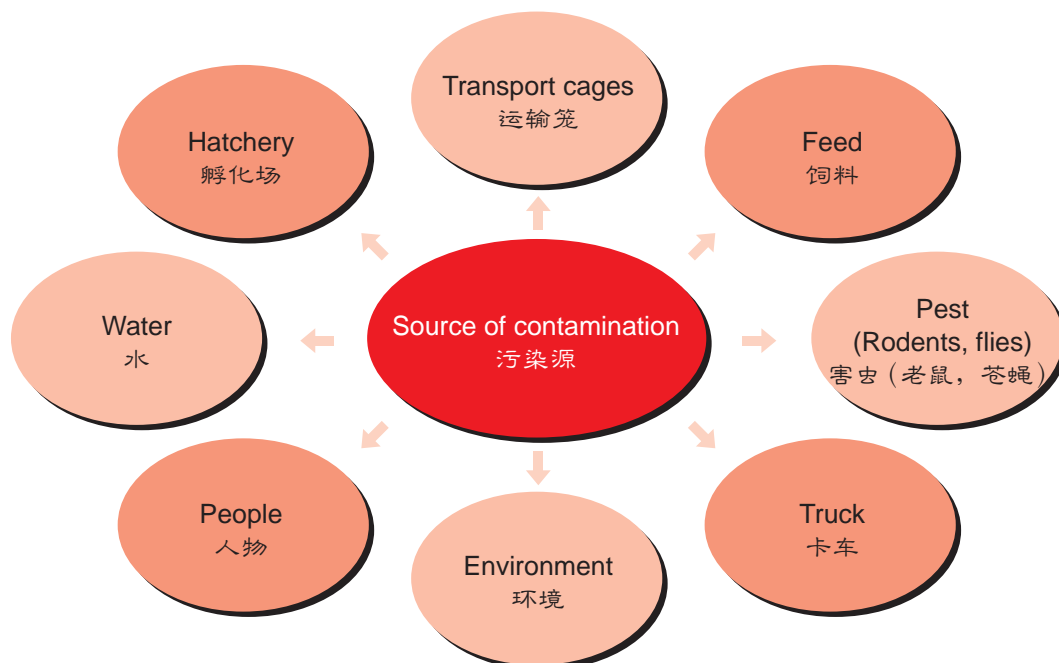
The 2 main genres of *Salmonella* are divided into two species: *Salmonella enterica* & *Salmonella bongori* (less concern). In poultry exclusively two host-specific serotypes are recognised to produce clinical Salmonellosis affecting only poultry namely the *S. gallinarum* (Fowl typhoid) & *S. pullorum* (Pullorum disease). While a number of non-host-specific serotypes (***S. enteritidis*** & ***S. typhimurium***) infecting both animal & humans are generally responsible for foodborne illness causing huge economic losses due to poor performance and egg trading issue.



Clinical sign and lesions vary among the age groups, type of flocks and serotypes. These includes drop in egg production and mortality. Common gross lesions such as myocardial necrosis, pericarditis, perihepatitis, splenitis, and egg peritonitis are often observed.

沙门氏菌的两个主要属分为两种：肠沙门氏菌和邦戈沙门氏菌（较少关注）。在家禽中，仅识别出两种宿主特异性血清型可产生单单影响家禽的临床沙门氏菌病，即 *S. gallinarum*（家禽伤寒）和 *S. pullorum*（鸡瘟病）。然而感染动物和人类的许多非宿主特异性血清型（肠炎沙门氏菌和鼠伤寒沙门氏菌）才是一般食源性疾病、农场表现差和鸡蛋交易问题而造成巨大经济损失的原因。

临床症状和病变随年龄组，鸡群类型和血清型而异。这些包括产蛋量下降和死亡。经常观察到的常见严重病变有心肌坏死，心包炎，肝炎，脾脏炎和卵性腹膜炎。



However due to banning of antibiotic usage & antimicrobial resistance, combination of several control strategies are widely used and favours by most farmer to prevent the occurrence of Salmonellosis and spreading in the flocks.

- ◆ Vaccination
  - Vaccines are serotype specific, so they have a limited protective effect among Salmonella serotypes within their own group.
  - A useful program for breeders or layers should include a combination of both live and killed vaccines (SET VAC) to achieve efficient protection by the combination of cellular and antibody activation.
- ◆ Probiotic with combination of organic acids (Synlac + Toxiveex) enhance & strengthen gut health thru competitive exclusion
- ◆ Antimicrobial peptide

**Remark:** Proper management against Salmonella require holistic approach. Farm hygiene and biosecurity should not be compromised or substituted by the above combinations.

然而，由于禁止使用抗生素和抗菌素耐药性，几种控制策略的结合被广泛使用，并且受到大多数农民的青睐，以防止沙门氏菌病的发生和在鸡群中的扩散。

- ◆ 疫苗接种
  - 疫苗是血清型特异性的，因此它们对自身沙门氏菌血清型的保护作用有限。
  - 优越的种鸡或产蛋鸡规划应包括活疫苗和死疫苗的组合（SET VAC），以通过细胞和抗体的激活相结合来实现在有效的保护。
- ◆ 益生菌与有机酸（Synlac + Toxiveex）的组合通过竞争排斥作用增强和加强肠道健康
- ◆ 抗菌肽

**备注：**妥善管理沙门氏菌需要采取整体方案。上述组合不应妥协或取代农场的卫生和生物安全。



## PROPERTIES 特性

**SET-VAC** is prepared using antigens of *Salmonella enteritidis* and *Salmonella typhimurium*. The cultures are inactivated and emulsified in light mineral oil to boost and lengthen the immunogenic effect.

**SET-VAC**是使用肠炎沙门氏菌和鼠伤寒沙门氏菌的抗原制备而成。细菌培养物是在轻质矿物油中失活并乳化，以增强和延长免疫原性作用。

## KEY POINTS 关键点

- |                                      |          |
|--------------------------------------|----------|
| ◆ High and long-lasting immunity     | 高而持久的免疫力 |
| ◆ Reduction of ovary infection       | 减少卵巢感染   |
| ◆ Great reduction of faecal shedding | 减少粪便细菌脱落 |

## COMPOSITION 成份

1 dose of vaccine contains:  
Inactivated culture of *S. enteritidis*: not less than  $10^9$  CFU  
Inactivated culture of *S. typhimurium*: not less than  $10^9$  CFU

一剂疫苗包含：  
肠炎链球菌的灭活培养：不低于 $10^9$  CFU  
鼠伤寒沙门氏菌的灭活培养：不低于 $10^9$  CFU

## INDICATIONS 适应症

Prophylaxis vaccination against *S. enteritidis* and *S. typhimurium* infections in the chicken.

鸡中针对肠炎沙门氏菌和鼠伤寒沙门氏菌感染的预防接种。

## DOSAGE & ADMINISTRATION 用法用量

**SET-VAC** is indicated in the vaccination of layer and breeding pullets, at an age of 6-8 weeks. A second vaccination is carried out between 14 and 16 weeks of age.

The dose of 0.5 ml is injected subcutaneously in the neck or intramuscularly in the breast.

**SET-VAC**适用于6-8周龄的蛋鸡和种鸡的疫苗接种。在14至16周龄之间进行第二次疫苗接种。在颈部皮下或胸肌处肌肉内注射0.5毫升的剂量。

## NOTE 备注

Allow vaccine to reach room temperature before use. Shake vials well before and during use.

使用前，让疫苗达到室温。在使用之前和使用过程中，请先摇匀小瓶。

## STORAGE & PACKING 储存与包装

Store in a refrigerator at +2 to +8°C (avoid freezing)  
500-ml vials (1000 doses)

储存在摄氏+2至+8度的冰箱中（避免冷冻）  
一瓶500毫升（1000剂）



For further information, please contact us at F.E Venture Sdn Bhd 03-5633 3493 or Dr. Chua 017-937 1867  
有关详细的资料，请联络F.E Venture Sdn Bhd 03-5633 3493 或 Dr. Chua 017-937 1867

## Zyrox® Fly granular bait

### 苍蝇颗粒诱饵

#### New Resistance –Breaking Fly Control:

Zyrox® Fly granular bait is the most attractive and longest lasting solution for the control of flies, delivering a cleaner and healthier environment for improved livestock production.

#### Fly control unlike any other:

Zyrox® Fly granular bait combines a novel chemistry for fly control with an attractive and easy to use formulation, to achieve reliable and effective results, first time — every time.

- ◆ New mode of action: The unique active ingredient can be used as a powerful tool in a resistance management strategy.
- ◆ Time-efficient: Zyrox® Fly can fill up to twice as many bait stations, compared to other baits — to help save time and money.
- ◆ Attractive option: Zyrox® Fly is formulated to be highly attractive to flies and ensure effective control, even at a low rate of use.

#### An advanced solution for fly control:

Flies can be a major nuisance for customers' homes and businesses. Flies are also capable of transmitting many pathogens that threaten human and animal health.

Zyrox® Fly granular bait is a designed to help control flies to ensure customers can live their lives uninterrupted by the nuisance and risk of flies, in cleaner and healthier environments.

#### Unique Science Inhibits Fly Activity:

Zyrox contains *cyantraniliprole*, a second generation active ingredient from the anthranilic diamide class of chemistry. *Cyantraniliprole* disrupts muscle contraction in a fly by depleting calcium ions which paralyzes the fly and inhibits movement almost immediately after ingestion.





## 新突破抗药的苍蝇控制:

Zyrox® Fly 颗粒诱饵是控制苍蝇最有吸引力、最长久的解决方案,可提供更清洁、更健康的环境,以改善畜牧业生产。

## 与众不同的苍蝇控制:

Zyrox® Fly 颗粒诱饵结合了新颖的防蝇化学成分和引人注目且易于使用的配方,第一次 - 每次都能获得可靠,有效的结果。

- ◆ 新的作用方式:独特的活性成分可以用作抗性管理策略中的有力工具。
- ◆ 省时:与其他诱饵相比,Zyrox® Fly 可填满两倍的诱饵站,以节省时间和金钱。
- ◆ 诱人的选择:Zyrox® Fly 的配方对蝇具有极强的吸引力,即使在低使用率的情况下也能确保有效控制。

## 控制苍蝇的高级解决方案:

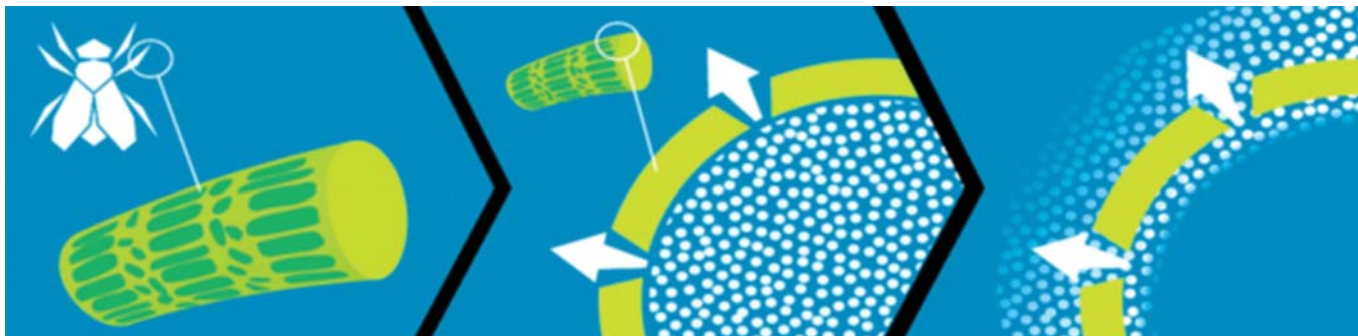
苍蝇可能会对客户的住所和企业造成重大干扰。苍蝇还能传播许多威胁人类和动物健康的病原体。

Zyrox® Fly 颗粒诱饵旨在帮助控制苍蝇,以确保客户能够在更清洁,更健康的环境中不受苍蝇的骚扰和风险影响而过上自己的生活。

## 独特的科学抑制苍蝇活动:

Zyrox 含有 *cyantraniliprole*,这是化学邻氨基苯甲酰胺中的第二代活性成分。氰基氰菊酯通过消耗钙离子来破坏苍蝇的肌肉收缩,使之麻痹,并在摄入后几乎立即抑制运动。

Fig 1: Zyrox® Fly mode of action / 图1: Zyrox® Fly 作用方式



Phase 1: Exposure  
Flies ingest the active ingredient in Zyrox.

阶段1: 曝光  
苍蝇在 Zyrox 中摄取有效成分。

Phase 2: Activation  
The product binds to the ryanodine receptors in the fly's muscles and causes them to open.

阶段2: 激活  
该产品与苍蝇肌肉中的 ryanodine 受体结合,并使它们打开。

Phase 3: Paralysis and Death of Flies  
Calcium flows out of the open ryanodine receptors, depleting calcium needed for muscle contraction. The resulting muscle paralysis leads to insect death.

阶段3: 苍蝇瘫痪和死亡  
钙从开放的 ryanodine 受体流出,消耗了肌肉收缩所需的钙。结果肌肉麻痹导致昆虫死亡。

## Resistance management and flexibility 抗药管理和灵活性

Resistance in house flies has been well documented and new active ingredients are essential in overcoming resistance issues. The active ingredient in Zyrox is a unique compound, classified as a Group 28 (Diamide) by the Insecticide Resistance Action Committee (IRAC).

This unique chemistry works differently from all the other insecticides commonly used in fly control. This means Zyrox® Fly can now be used to effectively control multi-resistant flies (Fig. 2), including resistance to imidacloprid, thiamethoxam, methomyl, organophosphates and pyrethroids.

Zyrox® Fly is essential as a rotational product in Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs.

家蝇的抗药性已有充分文献证明,新的活性成分对于克服抗药性至关重要。Zyrox 中的活性成分是一种独特的化合物,被杀虫剂抗药性行动委员会 (IRAC) 归类为第 28 组 (二酰胺)。

这种独特的化学作用不同于苍蝇防治中常用的所有其他杀虫剂。这意味着 Zyrox® Fly 现在可有效的用于控制多重抗药性蝇 (图 2), 包括对吡虫啉,噁虫嗪,灭多威,有机磷酸酯和拟除虫菊酯的抗药性。

Zyrox® Fly 是病虫害综合治理 (IPM) 和昆虫抗性管理 (IRM) 计划中必不可少的轮换产品。

Fig 2. Trials have demonstrated that Zyrox® Fly successfully controlled house flies with multi-resistant to pyrethroids and organophosphates with kdr, skdr and metabolic resistance with the same high efficacy and quick results as susceptible flies.

图2. 试验表明，Zyrox® Fly 成功控制了对拟除虫菊酯和有机磷酸酯具有多重抗药性，kdr，skdr 和代谢抗性具有多重抗性的家蝇，并且具有与易感蝇类相同的高效和快速结果。

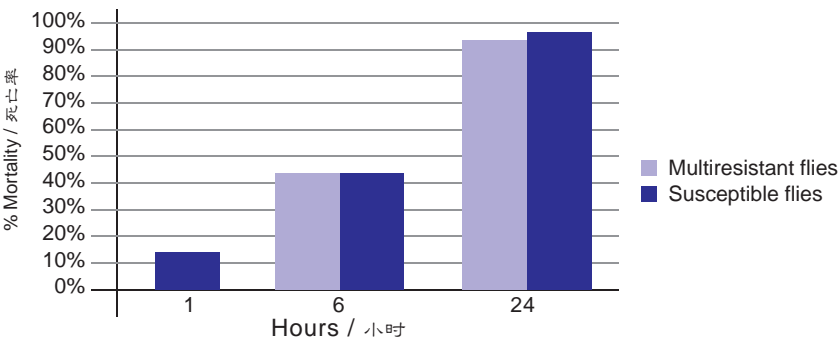


Fig.2 Lab trial with multiresistant house flies (*Musca domestica*)  
图2.具有多抗性家蝇的实验室试验（家蝇）

Formulated for results 为结果制定

Zyrox® Fly is formulated as highly palatable bait that will readily attract and control flies. It does not require a pheromone and avoids issues of bait aversion that can reduce the efficacy of some granular baits.

University trials have proven Zyrox® Fly is up to six times more attractive than some other baits currently on the market (Fig.3).

Zyrox® Fly 被配制为极可口的诱饵，可以很容易地吸引和控制苍蝇。它不需要信息素，并且避免了某些颗粒状诱饵功效降低的诱饵厌恶问题。

大学的多项实验证明，Zyrox® Fly 的吸引力是目前市场上其他诱饵的六倍（图3）。

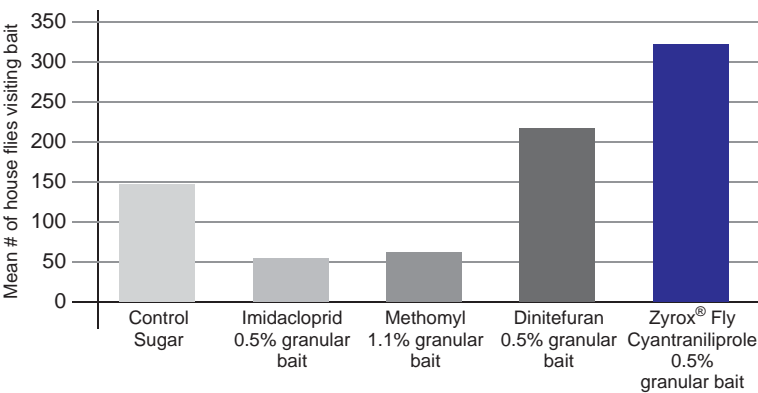


Fig 3. On-farm trials in the US have shown that Zyrox® Fly is significantly more attractive than other leading fly baits.

图3. 在美国的农场试验表明，Zyrox® Fly 比其他领先的蝇饵更具吸引力。



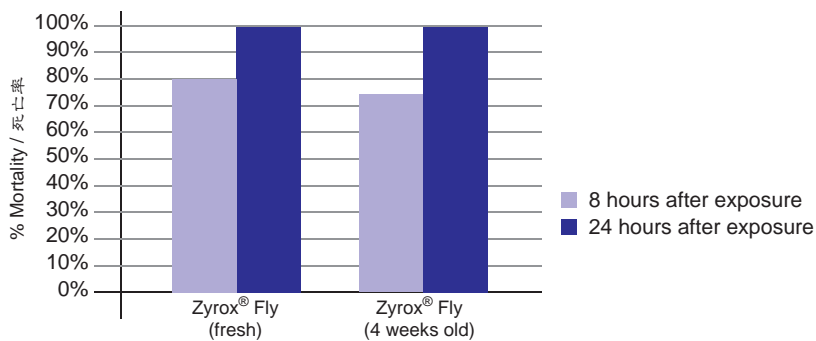


Fig.4 / 图4

#### Efficient bait use 高效的诱饵应用

The purpose-designed formulation of Zyrox® Fly creates a high surface area of granules for effective fly contact at low rates of use — making more efficient use of operators' time and costs.

Furthermore, Zyrox® Fly remains highly palatable for many weeks after bait placement. After four weeks exposed to sun and natural humidity, but protected from rain, Zyrox still maintained 100% control of flies within 24 hours of treatment.

Zyrox® Fly remains attractive and highly effective providing complete control after 4 weeks.

**Zyrox® Fly** 专门设计的配方产生高表面积的颗粒，从而在较低的使用率下实现有效的苍蝇接触—进而更有效地利用了操作员的时间和成本。

此外，在放置诱饵后的数周内，Zyrox® Fly 仍然具有很好的口感。在暴露于阳光和自然湿度下但不受雨水侵袭的四个星期后，Zyrox 在施用后的24小时内仍保持100%的家蝇控制率。

Zyrox® Fly 在4周后仍然具有吸引力及高效率，提供完全控制。

#### Application and use rates 施用率和使用率

- ◆ For use indoors in bait stations 用于室内诱饵站
- ◆ Low application rate: 低施用率:
  - low infestation : 1 - 2 g/m<sup>2</sup> 少虫害：每平方米 1 - 2 g
  - high infestation : 2 - 4 g/m<sup>2</sup> 高侵染：每平方米 2 - 4 g
- ◆ Hang or place bait stations where flies gather, e.g. Close to windows, near warm walls, on top of a wall.
- ◆ Vertical or closed horizontal bait stations will give better control results as they are protected from dust and dirt.
- ◆ If the bait stations are covered with dust, the bait can be refreshed by spraying water on it. (hand pressure sprayer)
- ◆ 在苍蝇聚集的地方悬挂或放置诱饵站，例如：靠近窗户，靠近暖墙，在墙顶。
- ◆ 立式或封闭式水平诱饵站可免受灰尘和污垢，因此控制效果会更好。
- ◆ 如果诱饵站布满灰尘，可以通过在其上喷水（手动压力喷雾器）来更新诱饵。

#### Flexible application for maximum control 灵活的应用程序可实现最大控制

Zyrox® Fly has been approved for use both indoors (in a bait station) and outdoors in the most common areas where high flies densities result in customer complaints, or risk the transfer of illness or disease.

Zyrox® Fly 已获批准在室内（诱饵站中）和室外的使用，最常见的区域是苍蝇密度高导致客户投诉，或冒着转移疾病或疾病的风险。

**Zyrox can also be applied to outdoor areas of commercial operations such as** 还可以应用于商业活动的室外区域，例如：

- ◆ Dairy, meat and poultry processing plants 乳制品，肉类和家禽加工厂
- ◆ Fruit and vegetable processing plants 水果和蔬菜加工厂
- ◆ Seafood processing plants 海鲜加工厂
- ◆ Recycling plants 回收厂
- ◆ Zoos 动物园

**For production animal accounts, Zyrox can be applied in and around** 对于畜牧帐户，Zyrox 可以应用于以下领域：

- ◆ Poultry/broiler houses 家禽/肉鸡舍
- ◆ Caged layer houses 笼式蛋鸡舍
- ◆ Swine production structures 养猪生产结构
- ◆ Livestock housing structures 牲畜房屋结构
- ◆ Horse stables 马厩



# The forgotten vital organ- LIVER

## 被遗忘的重要器官-肝脏



With poultry farming profits becoming marginal because of the increasing price of feed ingredients, enhancing farm productivity by improving feed utilisation has become a core issue. The liver, being one of the most vital organs of the body, constitutes the lifeline system of animal. This organ also plays a major role in the digestion, metabolism and utilisation of feed nutrients.

### The liver and its functions

The liver consists of a right lobe and a left lobe, and the left lobe in the chicken is sub-divided into lateral and medial parts. After hatching, the liver lobes have a bright yellow colour because of the pigments they absorb along with the lipids of the yolk. The colour gradually changes to the mahogany-brown between 8-14 days. Here then, a yellowish brown color would be regarded as an abnormal color of the liver, but it does not always means pathological conditions that require treatment.

The liver is also one of the busiest organs in body. It carries out a large number of important digestive, metabolic and excretory activities, all of which have a significant role on the health and productivity in poultry.

The functions of liver are detailed below.

### Detoxification

Toxic substances of feeds, as well as the toxins produced in the body, are detoxified by the liver.

### Protein metabolism

Dietary proteins are hydrolysed in the intestine by the action of numerous proteases and peptidases, resulting in production of free amino acids. These amino acids are absorbed by the intestinal cells and passed into the portal vein. They then enter the liver and are transported via systemic circulation to other tissues and organs. Excess amino acids, which are not utilised for the synthesis of tissue proteins, hormones, enzymes etc., are catabolised by the liver. The catabolism of amino acids involves deamination whereby ammonia and keto-acids are formed. Ammonia is toxic for the birds. The released ammonia is converted into uric acids in the liver and excreted through the kidneys. Plasma proteins (like albumin, fibrinogen and prothrombin) are formed in the liver.

### Fat metabolism

The liver produces bile, which plays a very important role in the digestion of fat. With the assistance of choline, the liver is able to transform the depot fats into tissue fats so that the tissues can utilise them for energy.

### Carbohydrate metabolism

Glycogen is synthesised and stored in the liver. Excessive carbohydrates that are ingested by the bird are converted into lipids and are stored as fat in the body. The liver, with the assistance of pancreas, maintains a constant level of blood glucose. In urgency, glucose is synthesized from proteins and fats in the liver, i.e. gluconeogenesis.

### Vitamin metabolism

The liver helps in the absorption of fat-soluble vitamins A, D, E and K. Vitamin A is stored in the liver and released when the tissues require it. Vitamin K is utilised in the liver for the formation of prothrombin, which is required for clotting of blood in haemorrhages. Some members of the vitamin B group, especially B1, B2 and Niacin are metabolised in the liver, where they may also be stored.

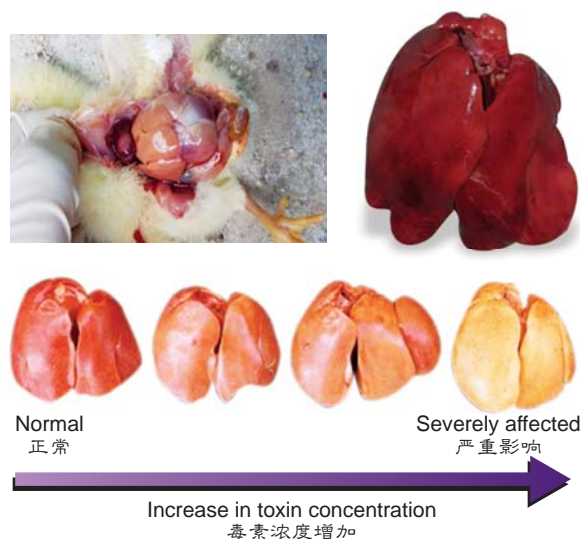
### Iron metabolism

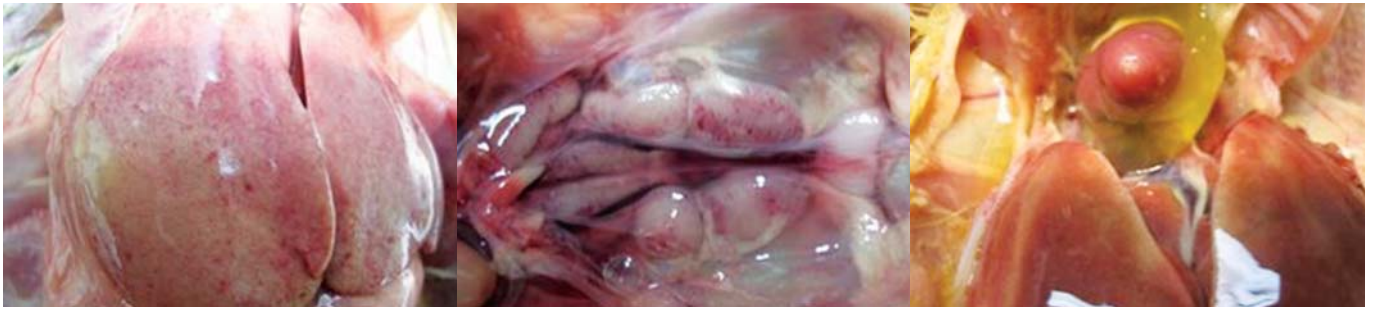
The lifespan of erythrocytes in chickens is 20-30 days. After this period, the erythrocytes are destroyed in the liver and the minerals (iron, copper and cobalt) released are stored in liver for the use by the body.

### Erythropoiesis

The formation of red blood cells (RBC) is called erythropoiesis. In birds, the liver is the site for erythropoiesis. Haemoglobin is synthesised in the liver.

Although the liver has so many essential functions for bird health, yet "physiologically normal" liver are rarely seen in field conditions because of frequent medication and exposure to toxic materials from the feed and the environment. Observation of liver color is the easiest and most reliable way to evaluate liver health. The liver could show various colors according to age, fat deposition, necrosis caused by viral infection, yolk absorption at an early stage and various other factors. Basically liver color observation should be done with a fresh sample within 30 minutes post mortem. Color changes in the liver could occur post mortem due to movement of red blood cell by force of gravity.





The most commonly seen liver lesions in broilers nowadays would be those associated with fowl adenoviruses (FAdV). FadV are associated with serious economic losses from Inclusion Body Hepatitis (IBH), or serotype 4 that results in hydropericardium lesions together with IBH, or more commonly called Hydropericardium and Hepatitis Syndrom (HSS). These lesions is sometime associated with pale and swollen kidneys, atrophy of immune organs and pinpoint foci in the pancreas upon necropsy.

In long-lived birds, the commonly seen lesions would be fatty liver hemorrhagic syndrome. This metabolic disease happen when accumulation of fat in the liver is increased beyond its storing capacity, and it sometimes causing hepatic rupture and bleeding. When hemorrhagic liver happen, it is usually accompanied by a drop in egg production and increase in mortality. Yellow discoloration is an early signs of fatty liver hemorrhagic syndrome, regular monitoring during necropsy is recommended to detect the early phase of fatty liver.

Another common hepatic lesion that can be seen in both short and long-lived birds is aflatoxicosis. In sub-acute aflatoxicosis, the liver appeared enlarged, pale yellow in colour, friable, and typically the gall bladder is also enlarged and filled with bile. The pancreas is usually small and depigmented and there could be hemorrhages on subcutaneous tissue and muscle. The other lesions in aflatoxicosis are smaller bursa of fabricius, thymus and spleen.

A variety of growth and production enhancers have come to be employed in poultry production to enhance poultry productivity. Herbal liver tonics act by protecting the liver from toxins and stimulating the liver function and thus, enhance growth and production performance. The use of a liver tonic liquid or powder varies from farm to farm, depending on the farmers' preference. In general, liquid liver tonics for water administration are preferred for the curative purpose as during liver disorder, feed consumption decreases significantly.

Alphaliver, a proven hepatoprotective formulation for healthier animals and better production performance. Alphaliver stimulates digestive enzymes, make easier fat acids oxidation and regulates lipids metabolism. The formulation also have some minor functions which favour the intestinal motor functions. Alphaliver can be administered via drinking water at 1 litre/ 1000 litres of drinking water for 3 to 5 days running.

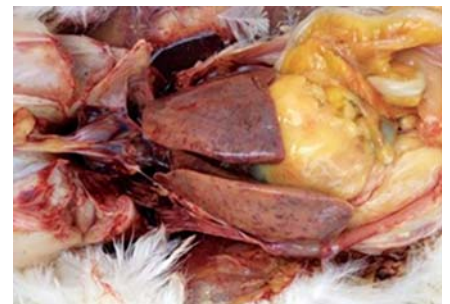
Alphatech is an independent French company created in year 2000. Since then, their zoo-technical and nutritional experience allows them to offer a right quality-price ration and a permanent technical assistance to farmers. All products are manufactured in the French factory without any subcontracting and they are working with F.E Venture Sdn Bhd since year 2018 for the Malaysia-Brunei market.

随着饲料原料价格的上涨，家禽养殖的利润变得微不足道，因此通过提高饲料利用率来提高农场生产力已成为一个核心问题。肝脏是身体最重要的器官之一，是动物的生命线系统。该器官在饲料营养的消化，代谢和利用中也起着重要作用。

#### 肝脏和其功能

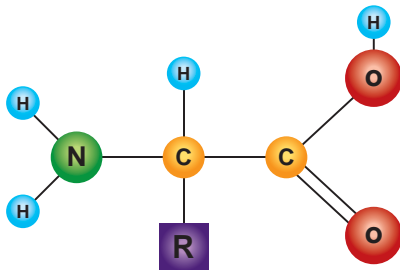
肝脏由右叶和左叶组成，鸡的左叶又分为外侧和内侧。孵化后，由于吸收了蛋黄的脂质和其中的色素，肝叶呈亮黄色。颜色在8-14天之后逐渐变为红木棕色。此后，黄褐色将被视为肝脏的异常颜色，但它并不总是意味着需要治疗的病理状况。

肝脏也是人体最繁忙的器官之一。它执行大量重要的消化，代谢和排泄活动，所有这些活动对家禽的健康和生产力都有重要作用。





肝脏的功能详述如下。



#### 排毒

饲料中的有毒物质以及体内产生的毒素被肝脏排解。

#### 蛋白质代谢

日粮蛋白质通过多种蛋白酶和肽酶的作用在肠中水解，从而产生游离氨基酸。这些氨基酸被肠细胞吸收并进入门静脉。然后它们进入肝脏，并通过全身循环运输到其他组织和器官。肝脏无法分解多余的氨基酸，这些氨基酸不能用于组织蛋白，激素，酶等的合成。氨基酸的分解代谢涉及脱氨作用，从而形成氨和酮酸。氨对鸟类有毒。释放的氨在肝脏中转化为尿酸，并通过肾脏排泄。血浆蛋白（如白蛋白，纤维蛋白原和凝血酶原）在肝脏中形成。

#### 脂肪代谢

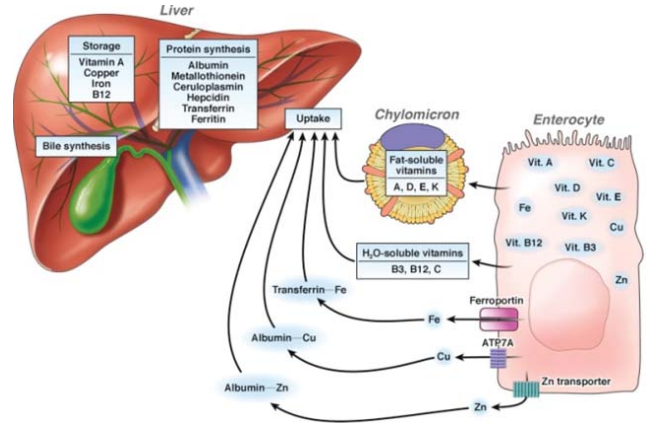
肝脏产生胆汁，胆汁在脂肪的消化中起着非常重要的作用。在胆碱的帮助下，肝脏能够将贮库中的脂肪转化为组织脂肪，从而使组织能够利用它们获取能量。

#### 碳水化合物代谢

糖原合成并储存在肝脏中。若鸟类摄过多的碳水化合物，它会转化为脂质，并以脂肪形式存储在体内。肝脏在胰腺的帮助下保持恒定的血糖水平。紧急情况下，葡萄糖是由肝脏中的蛋白质和脂肪合成的，即糖异生。

#### 维生素代谢

肝脏协助脂溶性维生素A，D，E和K的吸收。维生素A储存在肝脏中，并在组织需要时被释放。维生素K在肝脏中用于形成凝血酶原，凝血酶是出血中凝血所需的。维生素B组的某些成员，尤其是B1，B2和烟酸在肝脏中代谢，也可以储存在肝脏中。



#### 铁代谢

鸡的红细胞寿命为20-30天。在此期间之后，红细胞在肝脏中被破坏，释放出的矿物质（铁，铜和钴）被储存在肝脏中供身体使用。

#### 红细胞生成

红细胞（RBC）的形成称为红细胞生成。在鸟类中，肝脏是促红细胞生成的场所。血红蛋白在肝脏中合成。

虽然肝脏对鸡只的健康具有许多基本功能，但频繁的用药以及从饲料及环境中接触到的有毒物质导致“生理正常”的肝脏在农场是极少见的。观察肝脏的颜色是评估肝脏健康最简单和最可靠的方法。肝脏会据年龄，脂肪沉积，病毒感染引起的坏死，早期卵黄吸收和各种其他因素而显示出各种不同的颜色。基本上，应在鸡只死后30分钟内用新鲜样品进行肝色观察。肝脏的颜色在死后可能会因红细胞在重力作用下移动而产生变化。

如今，在肉鸡中最常见的肝脏病变是与禽腺病毒（FAdV）有关的肝脏病变。FAdV与造成严重经济损失的包涵体肝炎（IBH）有关；或血清型4导致水心包膜病变与IBH，或更常称为水心包和肝炎综合征（HSS）。这些病变有时与尸检时的肾脏苍白，肿胀，免疫器官萎缩以及胰腺中的针尖病变有关联。

在长寿鸟类中，常见的病变是脂肪肝出血综合征。当肝脏中脂肪的积累超过其储存能力时，就会引发这种代谢性疾病，有时还会引起肝破裂和出血。出血性肝病通常伴随着产蛋量下降和死亡率增加。黄色病变是脂肪肝出血综合征的早期迹象，建议在尸检期间定期监测以侦查早期阶段的脂肪肝。

另一种在短命或长寿鸟中常见的肝病是黄曲霉毒素中毒。在亚急性黄疸中毒中，肝脏呈肿大，浅黄色，易碎；胆囊通常也会肿大并充满胆汁。胰腺通常很小且有色素沉着，皮下组织和肌肉可能会出血。黄曲霉毒素中毒的其他病变是较小的法氏囊，胸腺和脾滑囊。

家禽生产中已采用了多种生长和生产促进剂，以提高家禽的生产率。草药肝脏补品的作用是保护肝脏免受毒素侵害并刺激肝脏功能，从而增强生长和生产性能。个别农场使用肝补液或粉末的方法各不相同，具体取决于农民的喜好。通常，出于治疗目的，用于水施用的液态肝补品是首选的，因为在肝病期间，饲料消耗会大大减少。



Alphasiver是一种经过验证的保肝配方，可让动物更健康及有更好的生产表现。Alphasiver刺激消化酶，使脂肪酸更加容易氧化，并调节脂质代谢。该制剂还具有一些辅助肠运动功能的次要功能。可以以1公升参1000公升饮用水的剂量通过饮用水连续3至5天施用Alphasiver。

Alphatech是一家成立于2000年的法国独立公司。从那时起，他们的动物药技术和营养经验使他们能够为农民提供合理的质量价格比和常驻的技术援助。所有产品均在法国工厂生产，没有任何分包合同，并且自2018年以来与F.E Venture Sdn Bhd 合作，进入马来西亚-文莱市场。

# Effective Prevention of Swine Pleuropneumonia (*Actinobacillus Pleuropneumoniae*) by Vaccination

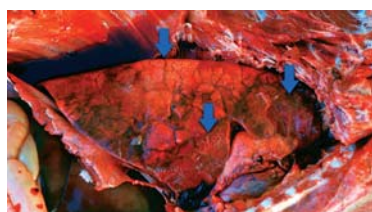
## 疫苗有效预防猪胸膜肺炎

One of the bacterial swine respiratory diseases is Swine Pleuropneumonia; its causative agent is *Actinobacillus pleuropneumonia* (APP). It leads to high economic losses in affected swine farm in most countries of the world. It could be in peracute and acute form of disease that leads to high morbidity and mortality rates in the affected swine herd. APP can affect all age of swine, but growing pigs (12-16 weeks old) are most susceptible among the herds. Affected swine herd could become carriers after recovery because the agent (APP) will colonize in the tonsil.

Therefore it is important to apply preventive measures against APP in the swine herd. The use of antimicrobials and vaccines are effective as treatment and prevention in farms presently. Antimicrobials are still normally used as prophylactic/metaphylactic to prevent swine pleuropneumonia in some European as well as most American and Asian countries. However antimicrobial resistance is getting more attention by World Health Organization (WHO). Currently, many countries around the world start the reinforcement to restrict the use of antimicrobials in related industries such as veterinary medicine in order to reduce antimicrobial resistance to maintain public health.

猪的其中一种细菌性呼吸道疾病是胸膜肺炎，它的病原体叫放线杆菌。它在世界各地受感染的猪农场引起高额经济损失。胸膜肺炎分极急性或急性，可在受感染猪群中造成高发病率和死亡率。这病原体可以感染任何阶段的猪只，但是最容易受感染的阶段是在12-16周龄（成长年龄）。受感染后痊愈的猪可能转化为成载体因为病原体定会定植在猪的扁桃体内。

因此必须在农场采用预防胸膜肺炎的措施。目前，抗生素和疫苗是有效于治疗和预防农场的细菌传播。在一些欧美洲和大部分的亚洲国家，使用抗生素以作预防性治疗胸膜肺炎仍是常态。但是抗生素的抗药性逐渐受世界卫生组织关注。因此，许多国家已经加强控制抗生素在有关领域里的使用，例如：兽医药物，以减少抗生素的抗药性来保持公共卫生。



Acute pleuropneumonia in swine- three observations (indicated by arrows) can be made frequently: dark red to black consolidated areas, interlobular edema and fibrinous pleuritis

急性地胸膜肺炎-三个常见的观察点（如箭标）：深红到黑色的实变部分，肺部的小叶间水肿和纤维性胸膜炎

Antimicrobial treatment is a kind of temporary preventive measure because it relieves the clinical sign but does not eliminate APP from the tonsil of carrier pigs. Shedding of APP and continuous infection in the swine herds is highly possible even after treatment.

Hence vaccination is highly recommended to reduce antimicrobial use, eliminate the causative agent (APP) in the swine herd and reduce risk of infection.

There are mainly 3 types of commercial APP vaccines in the market:

抗生素治疗是一种短暂的预防作用因为它只能减轻动物的症状，但是不能消灭载体猪扁桃体内的病原体（放线杆菌）。即使经过治疗，病原体很有可能继续脱落并在猪群内持续传播感染其他猪只。

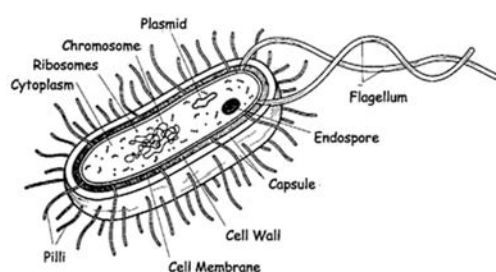
因此强烈推荐使用疫苗以减少抗生素的使用和有效的去除猪群里的病原体，并减少感染风险。

市场上主要有三种预防猪胸膜肺炎的商业疫苗：

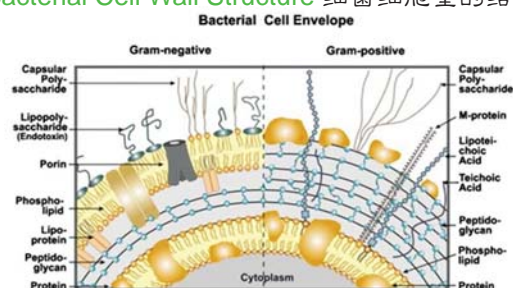
1. Bacterins (killed whole bacteria) – this type of vaccine is **serotype-specific**. Serotype of APP in the affected swine herd should be diagnosed before vaccination. Antibodies produced by vaccination are directed to “bacterial body antigen” such as its capsule, surface proteins, bacterial cell wall, etc. The antibodies produced will linger in the animal lung prepared to attach to APP or stay readily in alveolar macrophage or any other leucocytes which ingest and destroy the APP. In the absence of antibodies, APP will continue to reproduce and produce toxins (Apotoxin) that cause lesions in the lung cells of affected animal.

细菌素（杀死整个细菌）－这是一种血清型特异性疫苗。在使用这疫苗前，猪群里放线杆菌的血清型必须被诊断。疫苗所制成的抗体主要是针对细菌体抗原，例如：它的胶囊，表面蛋白，细菌细胞壁等等。这些抗体会附在动物的肺部，准备吸附病原体，或者寄存在肺泡巨噬细胞、其他白血球里等待吞噬并摧毁病原体。如果没有这些抗体，放线杆菌会继续繁殖生产毒素破坏动物的肺部细胞。

### Bacterial Cell Structure 细菌细胞的结构



### Bacterial Cell Wall Structure 细菌细胞壁的结构





Currently, antibodies induced by bacterin vaccination are mainly directed to bacterial capsule, protein and maybe some lipopolysaccharide (LPS). Therefore those commercial LPS-based ELISA test kits cannot evaluate the vaccination response accurately. Besides, those test kits are mostly standardized to detect APP infection instead of vaccination.

目前，细菌素疫苗所产生的抗体主要针对细菌的胶囊，蛋白和一些脂多糖。所以那些商业的脂多糖酶联免疫吸附测试套件并不能准确地评估接种疫苗反应。那些测试套件主要用于测试动物是否感染放线杆菌，而不是接种疫苗反应。

2. Purified toxoid-based vaccine (some enriched with surface proteins): Apx I, Apx II and Apx III toxoids are present. Different serotypes of APP produce one or two of these toxins, and all produce Apx IV toxoids. This vaccine gives protection against all serotypes. However, the antibodies induced only “neutralize” the toxins to prevent lesion but do not kill APP so it can still reproduce in the lung cells.

纯化毒素疫苗（一些富含细菌的表面蛋白）：存有毒素I，毒素II和毒素III。不同的血清型的放线杆菌会生产一或两个毒素，但是全部会生产毒素IV。这种疫苗可以有效对抗所有不同血清型的放线杆菌。但它只是中和其毒素避免造成细胞破坏，却不能消灭放线杆菌的存在，所以放线杆菌可以继续再动物肺部繁殖。

3. “Mixed”: Bacterin (for specific serotypes) + purified toxoid-based vaccine, antibodies induced are anti-toxins and anti-bacterial components (only for serotypes included in the vaccine)

“混合”：细菌素（血清型特异性）+ 纯化的毒素疫苗，制造的抗体可以有效对抗毒素和放线杆菌（只能对抗疫苗所涵盖的血清型特异性的放线杆菌）

### Vaccination of Piglets 小猪疫苗接种

- ◆ Two doses, first dose can be applied at 8-9 weeks old to avoid interference with maternal antibodies, second dose as booster after 3-4 weeks.
- ◆ 两剂，第一剂可以在小猪的8-9周龄以避免母源抗体的干涉，第二剂助推剂在第一剂后的3-4周。

### Vaccination of Sows/Gilts 新母猪和第二胎或以上的母猪

- ◆ Two doses are recommended, second doses should be applied 3 weeks before farrowing; repeat one dose at 3 weeks before each farrowing.
- ◆ APP bacterin vaccination increases the level of maternal antibodies thus reduce colonization of APP in piglets especially in multi-site production farms. These maternal antibodies will reduce the prevalence of carrier animal at weaning and subsequently lessen the presence of clinical signs in grower-finishers animals. APP bacterin vaccine is highly recommended to reduce APP colonization in tonsil of animals. On the other hand, toxoid-based vaccines induce antibodies against secreted toxin only; it does not attach to the APP bacteria.
- ◆ 建议两剂，第二剂必须在分娩前3周；每个分娩前3周重复接种疫苗。
- ◆ 细菌素疫苗接种可以提升猪群整体的母源抗体，亦减少放线杆菌定植在小猪的身上，尤其是在多生产线的农场。这些母源抗体可以减少断奶小猪的成载体率，因而降低成长猪儿的发病症状。所以强烈推荐在母猪产线使用放线杆菌细菌素疫苗以减少放线杆菌定植在猪的扁桃体内。反之纯化毒素疫苗只引发对抗毒素的抗体，其抗体并不会吸附在放线杆菌上。

### FATRO Pleuro-Suivax is a serotype-specific bacterin vaccine FATRO Pleuro-Suivax 是一种血清型特异性细菌素疫苗



### Other Preventive Measures for Swine Pleuropneumonia 其他猪胸膜肺炎的预防措施

- |   |                     |
|---|---------------------|
| ◆ Practice “all-in-all-out” system  | 推行“全-进-全-出”的制度      |
| ◆ Practice batch farrowing  | 推行分批分娩              |
| ◆ Control of the environment such as temperature, ventilation             | 控制环境，例如：温度，通风       |
| ◆ Control of other predisposed infection such as Mycoplasma hyopneumoniae | 控制其他易感性感染，例如：猪肺炎支原体 |





## Efficacy against ASF / 有效对抗ASF

Kersia has undertaken independent testing under very stringent conditions of Virex against the ASF virus according to the EN14675 standards.

These tests were developed and carried out by WUR: Wageningen Bio-veterinary Research University in the laboratory in charge of programs for the prevention and eradication of ASF, located in The Netherlands.

Virex proved efficient in low temperature conditions of 4°C with a short contact time of 5 minutes.

Kersia 已按照 EN14675 标准，独立测试 Virex 在严格条件下对 ASF 病毒的功效。


这些测试由位于荷兰负责预防和消除 AFS 的方案方案的 WUR: Wageningen Bio-veterinary Research 大学的实验室所开发并执行。

Virex 在 4°C 的低温条件下以 5 分钟的短接触时间也证实有效。

African Swine Fever (ASF)

**FREE ZONE**



Product Name 产品	Condioting of testing 测试条件	Contact Time 接触时间	Temperature 温度	Concentration of Use 浓度用量
	Low Soiling /低污染: 3g/L BSA*	5 minutes 5 分钟	4°C	1%

\* Virex should be used as part of a Kersia biosecurity program, it is mandatory to carry out cleaning prior to disinfection and to have a comprehensive biosecurity plan to control ASF on your farms.

\* Virex 应用作 Kersia 生物安全计划的一部分，农场必须在消毒前进行清洁工作并制定全面的生物安全计划以控制您农场的 ASF。

Dangerous products: USE BIOCIDAL PRODUCTS WITH CAUTION. BEFORE USE, READ THE PRODUCT LABELS AND INFORMATION.

危险产品：小心使用生物杀菌产品。使用前，请阅读产品标签和信息。