

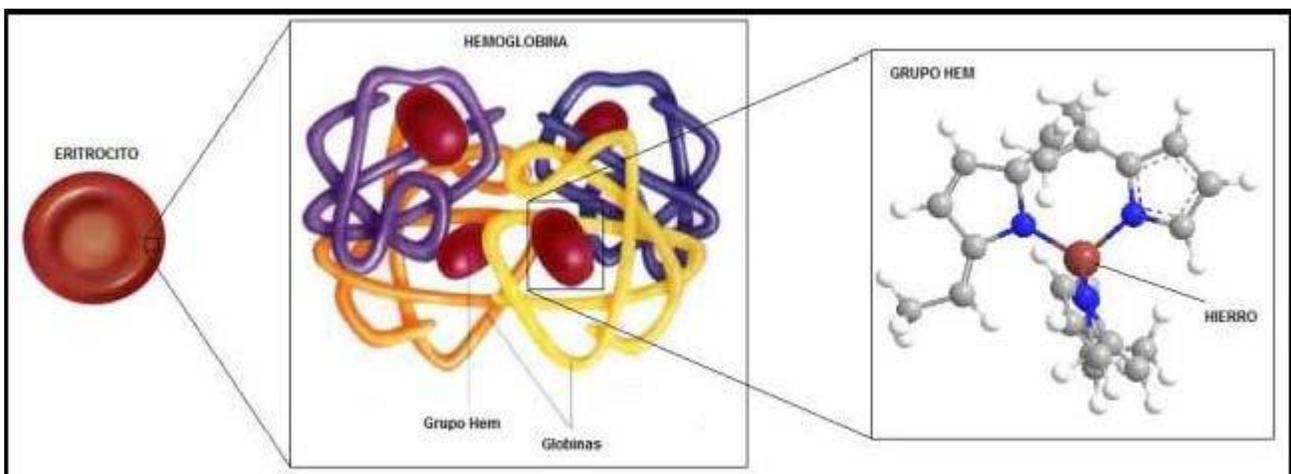
### Iron on the Supplementation of Piglets

The constant genetic improvement of species for production has brought great benefits to man; however it has also generated certain problems related to the health of the animals themselves. These problems are related to the metabolism of the animals as well as their own development and interaction with the environment around them (Schwartz, 1990).

A great example of this is the case of pig production. Currently, the piglets have been genetically improved to the point that have a much higher rate of growth, increased weight gain, improved feed conversion, which means less time in production for the market and generating greater return to the producer (Schwartz, 1990).

Because of these characteristics, the piglet is born with low concentration of iron (40-50 mg) for handling growth. Considering that the requirement of a piglet is 15 mg of iron a day and piglets currently are usually raised on cement floor, being deprived of the natural source of iron which is the earth; piglets just have stockpiles of iron for the first three days of life (Anderson, 1999).

As additional factors must be taken into account that the mother only contributes with 1 mg of iron daily for the piglet, which can not cover the needs of the pig. As the sum of all these factors, iron deficiency suffered by the pigs is evident. This iron deficiency limits the adequate production of hemoglobin. This deficiency of hemoglobin, is a serious challenge for the hematopoietic system of the piglet, which eventually lead to hypochromic microcytic anemia in piglet, which because of its origin is also called ferropenic anemia (Schwartz, 1990, Anderson, 1999; Victor and Mary, 2012).



Iron is the central part of the group, molecule required for the formation of hemoglobin and the proper tissue oxygenation

This anemia causes delay on growth and increased susceptibility to infectious diseases. Usually there is observed dyspnea, fatigue, pale skin and mucous membranes pale, diarrhea, rough skin and coarse hair, edema, and the sudden appearance of dead piglets. As obvious solution to these problems the administration of parenteral or oral iron is used during the first week of life of the piglets, taking into account the levels of Vitamin E, Copper and Cobalt on the farm, since any deficiencies of these elements alters the correct use of iron (Schwartz, 1990; Merck, 2000).

Currently there is large number of presentations of iron supplement for piglets, being iron dextran, one of the

most used due to its effectiveness in the prevention of these disorders, as well as for its easiness of absorption and deposition in the liver and spleen, where they are available for hemoglobin synthesis (Victor and Mary, 2012).

Several studies have demonstrated the relevance and effectiveness of the use of iron dextran in piglets. Among them, we can mention the study conducted by Murphy et al (1997), they evaluated the dosage of Fe, which was supplemented with 300 mg and 200 mg of iron per piglet, with a higher percentage of hemoglobin in the piglets that were administered 300 mg of Fe. No differences were found in daily gain of body weight with animals receiving 200 mg of Fe. In another study, Tang J. (2004) used 40 piglets Hampshire breed, bred intensively which were injected with a solution based on iron dextran 200 mg/ml and 60 ug/100 ml of Cyanocobalamin (Iron-Dex 200® B12) at a rate of 1 ml per animal, for the prevention of symptoms compatible with anemia. The effectiveness in preventing anemia was around 100%, evaluated for 7 days.

In 2005, Tang used 15 piglets Hampshire breed, reared intensively. These were injected with a solution based on iron dextran 200 mg/mL and Cyanocobalamin at 60 mcg/mL (Iron-Dex 200® B12) for prevention of symptoms compatible with anemia. The effectiveness in preventing anemia was around 100%, evaluated during 7 days. Ledesma (2006) used 44 piglets from four litters of Hampshire breed, reared intensively, which were dosed intramuscularly with an injectable solution based on iron dextran 200 mg/mL and 60 mcg/mL of Cyanocobalamin (Iron-Dex 200® B12) for prevention of symptoms compatible with anemia. The effectiveness in preventing anemia was around 100%, evaluated during 7 days.

As can be seen, the use of iron as a supplement for piglets can reduce up to 100% the appearance of anemias that can cause large amounts of lost on production.

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