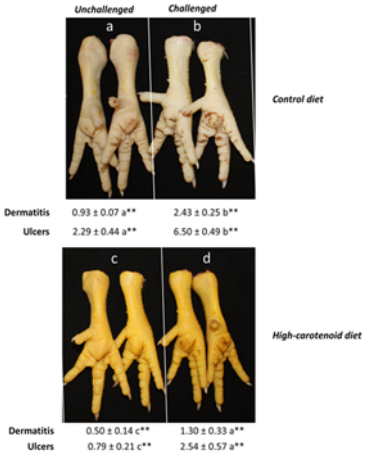
AGRIFOOD, BIOTECHNOLOGY, ANIMAL DISEASE CONTROL, NUTRITION

New feeding method to high levels of resistance to Coccidiosis based on a variety of maize genetically modified



BUSSINESS OPORTUNITY

Technology available for licensing

IP STATUS

1. Spanish patent ES2340119 (B1) Granted
2. Spanish patent ES2501367 (B1) Granted
3. Carolight - Registered Variety (Plant Breeders' Rights)
4. Cited Primary literature:
   - C. Zhu et al (2008) Proc Natl Acad Sci USA 105: 18232-18237 doi: 10.1073/pnas.0809737105
   - C. Nogareda et al, (2016) Plant Biotechnol J 14: 160-168; doi: 10.1111/pbi.12369

TAGS

Maized, Coccidiosis, Feed for Poultry, Carotenoids.

CONTACT

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METHOD BASED ON A NUTRITIONAL INTERVENTION TO FIGHT COCCIDIOSIS

THE TECHNOLOGY

A **novel genetically engineered (GE) variety of maize**, CarolightTM, which accumulate extraordinary levels of carotenoids (β-carotene, lycopene, zeaxanthin and lutein). Poultry raised on this corn were healthy and exhibited substantially **higher levels of resistance to coccidiosis, less foot pad dermatitis, reduced number of ulcers and less excretion of pathogen oocysts in feces**. Carotenoids accumulate in several tissues (skin, dermis, muscles and fat), conferring **high nutritional value** and greater consumer acceptance.

THE NEED

One of the most important and potentially devastating diseases in commercial poultry production, coccidiosis, is caused by microscopic protozoa (coccidia) that disrupt the normal gut environment of infected animals. This causes malabsorption of essential nutrients and often results in unnecessary suffering or even death. Subclinical symptoms, manifested as poor growth and feed conversion, are a problem in commercial broiler production, and this accounts for 20% prevalence of coccidiosis. The cost of coccidiosis and impact on poultry production is mainly due to the cost of control through medication and vaccination which are non-optimal solutions with several disadvantages.

MARKET

USA and India represent ca: 80% of worldwide chicken production. In the USA, the value of broilers produced during 2014 was $32.7 billion, up 6 percent from 2013. The total number of broilers produced in 2014 was 8.54 billion. Coccidiosis is a significant source of economic losses for the global poultry industry, estimated at $2,4 billion.

ADVANTAGES

- Cheaper than commercial supplements
- Extraordinary levels of β-carotene and other pro-vitamin A carotenoids (170-fold)
- Substantially less pathogen oocysts in feces (4-fold)
- Substantially lower foot pad dermatitis lesions (2-fold)
- Reduced number of foot ulcers (2-fold)
- Reduced use of anticoccidial drugs
- Greater consumer acceptance

APPLICATIONS

Feed for poultry.

LEVEL OF DEVELOPMENT

Concept validation.