

A
Gas Sensor
Commercial Opportunity

LA-UR-19-22973
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Dynamic Ammonia Monitors for Poultry Production



SUMMARY

Ammonia is one of the most harmful gases present inside poultry houses impacting the health and growth of chicken by inhibiting weight gain. The weight loss can be as high 17% causing millions in lost revenues for poultry farmers. Active monitoring and real-time control of ammonia can increase profits for American farmers by a billion dollar a year by reducing the weight loss by just 2%. There are no reliable sensors for regulating ammonia inside poultry houses currently on the market.

The DynAmmo multi-gas sensor developed at Los Alamos National Laboratory, continuously monitors ammonia to provide poultry farmers complete control over the air quality in poultry houses to improve the weight gain of chicken and profit of the farmers.



AREAS FOR PARTNERSHIP

The Los Alamos team has identified areas for partnership and/or commercial licensing to advance this patented technology. Collaboration with commercial entity to develop a new product or integrate into current ventilation systems:

- The ideal partner should be able to provide engineering prototype design and testing, as well as finance a viable “Go-To-Market” sales and distribution plan.
- Ideal partners are AgTech systems integrators, or industrial HVAC and ventilation products companies with preference to USA small businesses.

If interested, please submit a written response to the contact below if your organization would like to pursue the technology in partnership with Los Alamos by **July 1, 2019**.

CONTACT:



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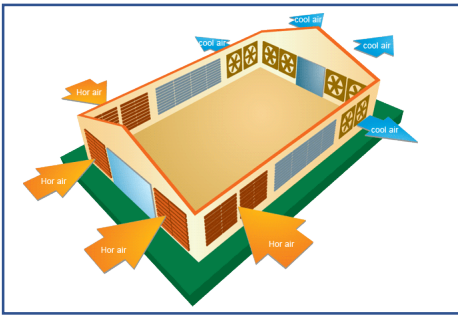
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WHY WE ARE BUILDING **DynAmmo Sensors**

The poultry industry produces 8.5B chicken annually with live chicken sales of over \$65B. Ammonia exposure reduces chicken weight gain by 5% on average amounting to \$2.5B of unrealized revenue. Los Alamos' patented sensor technology will reduce ammonia's impact on chicken production while increasing revenues up to \$1B annually. There are 200,000 poultry farms throughout the USA and at a unit price of \$1800, the sensor industry is valued at \$375M. Currently, there is only one solution provider who entered the market last year. As regulation requirements increase each year for ammonia sensors in the agricultural industries, the need for ammonia sensing, mitigation and remediation is going to increase.



WHAT'S BEHIND OUR **TECHNOLOGY**

This novel multi-gas electrochemical sensors developed by Los Alamos National Laboratory is an all solid state device that detects ammonia in concentrations ranging from few ppm to 1000 ppm. Combined with existing air ventilation systems, this innovative sensor design provides poultry farmers complete control over a poultry house climate to increase the profits of poultry farms. These sensors have been successfully demonstrated in laboratory conditions to detect ammonia in numerous complex multi-gas environments.



OUR **COMPETITIVE ADVANTAGES**

- Low cost
- Low maintenance
- Integrates easily
- High sensitivity
- Higher efficiency
- Higher durability



OUR **TECHNOLOGY STATUS**

Our patented sensor design has been successfully demonstrated in the laboratory environment. We are now seeking partners to help design a commercially deployable prototype for initial field testing in poultry farms. The prototype development and on-site field testing can be completed in one year with external support.



PUBLICATIONS AND IP

The innovation is protected by Electrodes for Solid State Gas Sensor – US patent 6605202 and Thin Film Mixed Potential Sensors – US patent 7264700