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Education:

Doctor in Veterinary Medicine

Universidad Nacional Autonoma de Mexico, Mexico City, June 2000

Master Science

Universidad Nacional Autonoma de Mexico, Mexico City, June 2002

Academic Activities:

Teacher assistant (1997-2004)

Department of Poultry Science.

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Academic Background:

Doctor in Veterinary Medicine

Graduated with honors.

Institution: F.M.V.Z./U.N.A.M.

Final exam: June 2000.

Thesis title: *Effect of a competitive exclusion product (Preempt) on mortality and horizontal transmission of Salmonella gallinarum in broiler chickens (Advisor: MVZ. MC. PhD. Téllez, G., MVZ. MC. PhD. Garcia, G., and MVZ. MC. Gomez, G.)*

Thesis title (Español): *Efecto de un producto de exclusión competitiva comercial (Preempt) sobre la mortalidad y transmisión horizontal de Salmonella gallinarum en pollo de engorda. Para obtener el título de Médico Veterinario Zootecnista., FMVZ/UNAM, Asesores: Téllez, G., García, G., Gomez, G., México, D.F., 2000.*

Master Science

Graduated with honors.

Institution: F.M.V.Z./U.N.A.M.

Final exam: June 2002.

Thesis title: *Functional foods: Manipulating the gastrointestinal ecology in the neonate broiler chicks with Aspergillus meal prebiotic added in the diet. (Advisors: DVM. MSc. PhD. Billy M. Hargis, MVZ. MC. PhD. Sergio Gómez Rosales)*

Thesis title (Español): *Alimentos funcionales: modificación de la ecología gastrointestinal del pollo de engorda neonato con la inclusión de un prebiótico en la dieta. Para obtener el título de Maestro en Ciencias, FMVZ/UNAM, Asesores: Hargis, B.M., Téllez, G., Gomez S. México, D.F., 2002.*

Scientific Publications:

Articles

Nisbet DJ, Tellez GI, Lowry VK, Anderson RC, Garcia G, **Nava G**, Kogut MH, Corrier DE, Stanker LH. Effect of a commercial competitive exclusion culture (Preempt) on mortality and horizontal transmission of Salmonella gallinarum in broiler chickens. Avian Dis 42:651-6, 2000.

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T.R. Callaway, R.C. Anderson, G. Tellez, C. Rosario, **G.M. Nava**, C. Eslava, M. Blanco, M. Quiroz, A. Olgin y Bernal, M. Herradora, T. S. Edrington, K.J. Genovese, R.B. Harvey, and D.J. Nisbet. The incidence of Escherichia coli O157 in cattle and swine in central Mexico. *Submitted to Journal Food Protection.*

J. L. Vicente, **G Nava**, C. Lopez, E. Avila, E. Morales, D. Donoghue, B.M. Hargis, and G. Tellez. Effect of dietary natural capsaicin on experimental salmonella enteritidis infection and yolk pigmentation in delta hens. *On preparation for submission*

Nava, G., Ledesma N., Nisbet, D., Anderson, R., Hargis, B. M., Donoghue, A, Donoghue, D., and Téllez G. Dietary Prebiotic Associated with Reduced Salmonella enteritidis Organ Invasion in Neonatal Broiler Chicks. *On preparation for submission*

Nava, G., Ledesma N., Sutton L., Nisbet, D., Anderson, R., Hume, M., Byrd, A. J., Calaway, T., Hargis, M. B., Donoghue, A. D., Rath, N., and Téllez G. Effect of Dietary Prebiotic Administration on Gastrointestinal Transit Time, Intestinal Morphology, pH, Short Chain Fatty Acids, and Absorption of Nutrients of Growing Broiler Chicks. *On preparation for submission*

Tellez, G., **Nava, GM.**, Vicente, S., Blore, P., Rath, N., Higgins, S.E., Bielke, L., Donoghue, D., Donoghue, A., Nisbet, D., Anderson, R., Hargis, B.M. Evaluation of dietary *Aspergillus* meal combined with the NT lactic acid bacteria probiotic culture (synbiotic) on intestinal morphometry and transmission of *Salmonella enteritidis* in turkey poults. *On preparation for submission*

Abstracts

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Nava, G., Ledezma, N., Priego, C., Priego, A., Sutton, L., and Tellez, G. Effect of *Aspergillus* sp and bacterial phytase containing broiler diets on body weight, gastrointestinal transit time and the crop and cecum pH of the broiler. *Poultry Science*, Vol. 80, Suppl. 1 Indianapolis, 24/28 July, 2001.

Nava, G., Ledezma, N., Priego, C., Priego, A., Sutton, L., and Tellez, G. Effect of *Aspergillus* sp and bacterial phytase containing broiler diets on intestinal villi size and blood chemistry of broiler chicks. *Poultry Science*, Vol. 80, Suppl. 1 Indianapolis, 24/28 July, 2001.

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Fernandez, M., Juarez, M., **Nava, G.**, Ledesma, N., Merino, R., Morales, E., Sutton, L., Silva, M., Camacho, E., Tellez, G. Evaluation of Coccivac-B™ and coccidial challenge on body weight, gut lesion escort, oocyst output and immunoglobulin A gastrointestinal concentration of the broiler chicks. Abstracts del International Poultry Scientific Forum,

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Nava G., Nisbet D., Anderson R., Hume M., Ledesma N., Hargis B.M., Tellez G. Alimentos funcionales suplementados con oligosacáridos (prebióticos) para modificar la ecología gastrointestinal del pollo de engorda. Abstracts del 1st Spanish congress on physiology, biochemistry, and molecular biology of carbohydrates. September 23-25, 2002. Pamplona, Spain.

Higgins, S., Bielke, L., Guenther, K., **Nava, G.**, Tellez, G., Newberry, L., and Hargis, B.M. Evaluation of a simple in vitro-selected probiotic consisting of nine non-pathogenic bacteria to prevent Salmonella infectin in turkey poults. Abstracts International Poultry Scientific Forum, Sponsored by the Southern Poultry Science Society, Southern Conference on Avian Diseases and U.S. Poultry & Egg Association. PSA Poscal 82 (Supplement 1): 96, 2003.

Juarez, M., Ledesma, N., Merino, R., **Nava, G.**, and Tellez, G. Evaluation of a commercial coccidial vaccine for Eimeria specific species in broilers after challenge with Mexican field isolates. Abstracts International Poultry Scientific Forum, Sponsored by the Southern Poultry Science Society, Southern Conference on Avian Diseases and U.S. Poultry & Egg Association. PSA Poscal 82 (Supplement 1): 143, 2003.

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a competitive exclusion culture against Campylobacter in poult. 92st Annual Meeting Abstracts, July 6-9, Madison, USA. PSA Poscal 82 (Supplement 1): 31, 2003

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J.L Vicente, G. Tellez, **G. Nava**, S. Higgins, A. Donoghue, D. Donoghue, and B.M. Hargis Evaluation of the Effect of Poultry Guard Litter Amendment on Horizontal Transmission of Salmonella enteritidis. 92st Annual Meeting Abstracts, July 6-9, Madison, USA. PSA Poscal 82 (Supplement 1): 32, 2003

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Wolfenden, A.D., C.M. Pixley, D.A. Johnson, S.E. Higgins, L.R. Bielke, **G.M. Nava**, G.I. Tellez, D.J. Donoghue, A.M. Donoghue and B.M. Hargis. Evaluation of a probiotic consisting of nine non-pathogenic bacteria for prophylactic treatment of Salmonella enteritidis in broiler chicks. The Food Safety Consortium. Annual Meeting Presentations. October 12-14, 2003. Fayetteville, AR

Higgins, S.E., L.R. Bielke, **G.M. Nava**, K.L. Guenther, G.I. Tellez, L.A. Newberry, and B.M. Hargis. Evaluation of a simple defined probiotic culture for prophylactic treatment of Salmonella enteritidis in turkey poult. The Food Safety Consortium. Annual Meeting Presentations. October 12-14, 2003. Fayetteville, AR

Nava, G.M., Tellez, G.I, Vicente, J.L., Blore, P., Donoghue, A., Donoghue, D., and Hargis, B.M. Lactic Acid Bacteria Culture with Wide in vitro Antibacterial Spectrum by Bacteriocin-like Activity and Probiotic effect in vivo. . The Food Safety Consortium. Annual Meeting Presentations. October 12-14, 2003. Fayetteville, AR

L.R. Bielke, S. E. Higgins, K. L. Guenther, **G. M. Nava**, G. I. Tellez, D. J. Donoghue, A. M. Donoghue, and B. M. Hargis. Salmonella Host Range of Bacteriophages which Exhibit Increased Host Range. The Food Safety Consortium. Annual Meeting Presentations. October 12-14, 2003. Fayetteville, AR

J. L. Vicente, G. Tellez, **G. Nava**, S. Higgins, A. Donoghue, D. Donoghue, and B.M. Hargis. Evaluation of horizontal transmission of Salmonella enteritidis to broiler chicks placed on acidified litter. The Food Safety Consortium. Annual Meeting Presentations. October 12-14, 2003. Fayetteville, AR

D. Donoghue, J. Holliman, **G. Nava**, J. Vicente, L. Bielke, K. Cole, P. Blore, A. Donohue, J. A. Bird, B. Hargis and G. Tellez. Competitive exclusion cultures consisting of lactic acid bacteria plus organic acids treatment may reduce Campylobacter colonization in turkeys. Int. Journal Med. Microbiol., 293(35):29.

V. Davila, **G. M. Nava**, A. Diaz, A. Lopez-Munguia, E. Avila, G. Tellez, J. L. Vicente, R. L. Jarquin, C. D. Sartor, and M. P. Castañeda. Novel approach to evaluate the intestinal mucose function and integrity in avian species. International Poultry Scientific Forum January 26-27 2004 Atlanta, Georgia.

The prebiotic effect of aspergillus meal on the specific growth rate of probiotic lactobacilli. C. D. Sartor, **G. M. Nava**, J. L. Vicente, R. L. Jarquin, V. Davila, G. I. Tellez, and B. M. Hargis. International Poultry Scientific Forum January 26-27 2004 Atlanta, Georgia.

S. E. Higgins, A. Torres-Rodriguez, J. L. Vicente, **G. M. Nava**, C. M. Pixley, C. D. Sartor, G. I. Tellez, D. J. Donoghue, A. M. Donoghue, and B.M. Hargis. Effect of probiotic cultures or antibiotics on enteritis-susceptible poult performance within brooding houses. International Poultry Scientific Forum January 26-27 2004 Atlanta, Georgia.

R. L. Jarquin, **G. M. Nava**, J. S. Vicente, A. D. Wolfenden, C. D. Sartor, S. E. Higgins, G. Tellez, D. J. Donoghue, A. M. Donoghue, and B. M. Hargis. Intermittent administration of a probiotic culture and a mixture of organic acids may reduce Salmonella enteritidis transmission in chicks. International Poultry Scientific Forum January 26-27 2004 Atlanta, Georgia.

J. L. Vicente, **G. M. Nava**, R. L. Jarquin, A. Torres-Rodriguez, C. D. Sartor, A. D. Wolfenden, S. Higgins, L. Bielke, G. Tellez, A. M. Donoghue, and B. M. Hargis. Evaluation of probiotic cultures on Salmonella prevalence in commercial turkey houses. International Poultry Scientific Forum January 26-27 2004 Atlanta, Georgia.

G. M. Nava, G. Tellez, J. L. Vicente, L. R. Bielke, P. J. Blore, A. M. Donoghue, D. J. Donoghue, and B. M. Hargis. Novel Lactobacillus culture demonstrates bacteriocin-like activity in vitro against multiple food borne pathogens and in vivo efficacy against Salmonella enteritidis. International Poultry Scientific Forum January 26-27 2004 Atlanta, Georgia.

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Alfaro, J., Juarez, M., **Nava, G.**, Petrone, V., Téllez, G. Evaluación de la protección inespecífica Conferida por linfocinas obtenidas de aves inmunizadas contra Eimeria tenella ó Salmonella enteritidis ante desafíos por Eimeria tenella en pollos de engorda previamente inmunizados. XV Convención Nacional de Especialistas en Ciencias Avícolas realizada en Cancun, QR, México, 3-6 de Mayo del 2000. pp. 1-6

Alfaro, J., **Nava, G.**, Juarez, M., Téllez, G., Fehervari, T. Evaluación del efecto profiláctico de un sobrenadante de linfocinas sobre el impacto negativo de la enfermedad de Newcastle en pollo de engorda XXV Convención Nacional de Especialistas en Ciencias Avícolas realizada en Cancun, QR, México, 3-6 de Mayo 2000. pp.7-14

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G. Tellez, **G. Nava**, Vicente, J., A.M. Donoghue, D.J. Donoghue and B.M. Hargis Prebiotics, probiotics, synbiotics and their roll on intestinal integrity. XXVIII Annual Meeting, April 30-May 3, 2003, Veracruz, México.

G. Nava, A. Drake, G. Tellez, A.M. Donoghue, D.J. Donoghue, and B.M. Hargis. Manipulation of intestinal ecology for improved gut health. First International Symposium on Intestinal Integrity. Guadalajara, Jalisco August 1, 2003. Toluca, State of México August 5, 2003 and Cordoba, Veracruz August 7, 2003.

Tellez G, **Nava, G.**, Vicente, J. L., Higgins, S.E., Bielke, L., Donoghue, A. M., and Hargis, B. M., Functional biology of intestinal goblet cells and their role in intestinal integrity and pathogen resistance. First International Symposium on Intestinal Integrity. Guadalajara, Jalisco August 1, 2003. Toluca, State of México August 5, 2003 and Cordoba, Veracruz August 7, 2003

C. Pixley, **G. Nava**, G. Tellez, A.M. Donoghue, D.J. Donoghue, and B.M. Hargis. Competitive Exclusion and Its Role in the Poultry Industry. First International Symposium on Intestinal Integrity. Guadalajara, Jalisco August 1, 2003. Toluca, State of México August 5, 2003 and Cordoba, Veracruz August 7, 2003

S.E. Higgins, J.L. Vicente, L.R. Bielke, **G.M. Nava**, C.D. Sartor, C.M. Pixley, A.D. Drake, R. Jarquin, G.I. Tellez, A.M. Donoghue, D.J. Donoghue, B.M. Hargis. Evaluation of beneficial bacteria administered as a prophylactic or therapeutic treatment to reduce Salmonella enteritidis in turkeys. First International Symposium on Intestinal Integrity. Guadalajara, Jalisco August 1, 2003. Toluca, State of México August 5, 2003 and Cordoba, Veracruz August 7, 2003

B.M. Hargis., G. Tellez, S.E. Higgins, J.L. Vicente, **G.M. Nava**, A.M. Donoghue and A.D. Wolfenden. The role of beneficial microflora in controlling enteric bacterial diseases: Probiotics, prebiotics and competitive exclusion. Proceedings Cornell Nutrition Conference for Feed Manufacturers. 65th Meeting, October 21-23, 2003. Cornell University, Ithaca, NY, 13057.

Seminars.

Efecto de la administración de harina de *Aspergillus* sp., fitasa bacteriana y ambos productos en la dieta de pollos de engorda. Sobre el grado de invasión a órganos por Salmonella enteritidis. XXVI Convención Nacional de Especialistas en Ciencias Avícolas realizada en Acapulco, Gurrero, México del 25-28 de abril 2001. pp. 209-211

Exclusión competitiva y uso de prebióticos. Diplomado en Producción Avícola. Nutrición y Alimentación. FMVZ-UNAM, 2001. Mexico D.F.

Invited Lectures

G. Tellez. *Development of non-antibiotic alternatives for food borne pathogen control and enteric health in poultry.* Food Safety meeting at the Southern Plains Agricultural Research Center in College Station, TX, May 28-29, 2003

G. Nava. *Functional foods: Importance of manipulating the gastrointestinal ecology in neonate broiler chickens with prebiotics.* Food Safety meeting at the Southern Plains Agricultural Research Center in College Station, TX, May 28-29, 2003

Patents

Defined Competitive Exclusion Cultures for Food Borne Pathogens

B.M. Hargis, S.E. Higgins, L.R. Bielke, G.I. Tellez, L.A. Newberry, **G.M. Nava**, A.M. Donoghue, D.J. Donoghue

Novel Methodology for Therapeutic and Prophylactic Bacteriophage Delivery and Amplification Using Non-pathogenic, Non-target Bacterial Host for Enteric Diseases

B.M. Hargis, S.E. Higgins, L.R. Bielke, G.I. Tellez, L.A. Newberry, **G.M. Nava**, A.M. Donoghue, D.J. Donoghue

Professional Activities:

Member of the Anaerobe Society of the Americas

Member of the American Society for Microbiology

Member of the Chartered Institute of Environmental Health

Member of the International Organization for Biotechnology and Bioengineering

Member of the International Society for Anaerobic Bacteria

Member of the European Federation of Biotechnology