(<50% amino acid identity) and the closest match to reoviruses in the public and PDRC databases was approximately 80%. In addition, the field isolates were not serologically related to S1133 and 2408 vaccine strains as evidenced by low VN titers (<2-4).

Pathogenicity and progeny protection studies were performed in commercial broilers using representative strains from one of the novel genotypes. Tenosynovitis was reproduced in both studies along with lower body weights and hydropericardium in reovirus field isolate challenged groups. Novel reoviruses have been isolated in recent cases of tenosynovitis from multiple broiler companies in several states. The preparation of autogenous vaccines is under consideration by several of the companies with affected flocks.

Key Words: Tenosynovitis, Novel Avian Reovirus, Lameness

T86 Adjuvant formulations designed to improve poultry vaccine stability Robert Parker1, Juliette Ben Arous, Sebastien Deville, Jerome Gaucheron, Laurent Dupuis SEPPIC Inc., Fairfield, NJ

Vaccine adjuvants are a key parameter in modern vaccine formulation. Most adjuvants are composed of synthetic components with immuno-modulator properties combined to create a galenic antigen presentation. However, multivalent vaccine antigens often have properties which destabilize vaccine formulations. We have been working on innovative adjuvants that allow the formulation of vaccines able to resist to very destabilizing antigenic media and conditions while keeping safety parameters and efficacy at requested levels.

First, bacterial vaccines were prepared by using MontanideTM standard and resisting adjuvants for poultry vaccines and were compared for emulsion stability over time. The stability of formulations based on resisting adjuvant Montanide™ ISA 71 VG was then tested by intramuscular injection of a double dose (1ml) of formulated trivalent viral vaccine in chickens. Finally, safety and efficacy properties of a Riemera® vaccine were tested in geese in a 17 weeks trial. 20 animals per group received a subcutaneous injection of 0.3ml of vaccine. Behavior of the animals, body weight gain, local reactions at the injection site (during trial and at slaughter) were assessed during the trial. Specific antibody titers were measured by ELISA titration at D0 and at 6, 10, 14 and 17 weeks.

We could show that slight adjuvant composition modifications can allow the formulation of stable vaccines able to pass severe stress tests. In chickens and geese trials, both resisting and standard formulations showed comparable acceptable safety levels. Results in the goose model showed that there were no efficacy differences between standard and resisting adjuvants, and that one injection of vaccine conferred stable antibody titers over 17 weeks.

We have shown that new Montanide™ adjuvants developed to resist to destabilizing antigenic media maintain high antibody levels and an acceptable safety profile in poultry, even combined with reactogenic Gram negative bacterial antigens. This new line of adjuvant will help to increase long term stability of poultry vaccines which are based on destabilizing antigens or stored in stressing conditions.

Key Words: Vaccine, Adjuvant, Goose, Vaccine stability

T87 Genotypic analysis of GA07 nephrotropic field isolates of infectious bronchitis viruses Vjig, Durrat2, Erich Limmemann, Vanessa Gauthiersloan, Susan M. Williams, Holly S. Sellers Poultry Diagnost and Research Center, Department of Population Health, The University of Georgia, Athens, GA

Infectious bronchitis (IB) is an acute and highly contagious disease in chickens caused by infectious bronchitis virus (IBV). IBV is an enveloped, single-stranded RNA virus which primarily affects the respiratory and reproductive tract in chickens. Additionally, some viruses have a predilection towards kidneys and are known as nephrotropic strains of IBV. Nephrotropic IB viruses can cause flushing in chickens along with varying levels of mortality with or without respiratory symptoms. The cell tropism and pathogenesis of IBV is primarily dependent on the spike (S) glycoprotein. Several immunogenic regions are located within the S1 subunit of the spike glycoprotein which is responsible for protective immunity. The main objective of this study was to analyze genetic changes within the S1 subunit from previously isolated variant nephrotropic isolates of IBV classified as GA07. The GA07 variant viruses were isolated from clinical cases of flushing on commercial poultry farms during 2007-2012. IBV was isolated from 61 submissions and genotyped based on S1 spike glycoprotein sequence. The nucleotide sequence analysis was performed using molecular and bioinformatics tools and was in silico translated to corresponding amino acids. Phylogenetic analysis of the nucleotide sequences from the field isolates were studied with the common vaccine strains. We compared the amino acid sequences of GA07 isolates from 2007-2012 and observed multiple amino acid mutations in the S1 subunit. These mutations were not only restricted to the hypervariable regions but also seen in the intervariable regions.

Key Words: Nephrotropic IBV, Spike Protein, Genotyping, Phylogenetic analysis, Flushing

T88 Assessment of live Newcastle disease virus VG/GA strain (Avinew®) subcutaneous vaccination. Francisco Perozo1, Rosmar Marcano1, Rafael Fernandez1, Francisco Rojo3 'University of Zulia Veterinary College, Maracaibo, Venezuela 2Venezuela Central University, Maracay, Venezuela 3Merial Select Inc., Gainesville, GA

The Villegas-Glisson/University of Georgia (VG/GA) strain of Newcastle disease virus (NDV) is used worldwide for Newcastle disease control and has been tested for spray, drinking water and in ovo application. Hatchery vaccination provides a controlled and clean environment for poultry vaccination, currently day-1 NDV vaccination in most endemic countries includes live coarse spray and killed subcutaneous applications. This work aims to assess the efficacy of including NDV live VG/GA strain subcutaneous vaccination at the hatchery. Four groups of ten 1-day-old commercial broilers were used (three replicates). Group 1: one-day-old dual (live/killed) vaccination with two field boosts (eight and 18 days). For groups 2 and 3, subcutaneous VG/GA strain was included with or without field revaccination. Group 4 remained as unvaccinated control. Percentage of survival, serological response and viral shedding were used as efficacy criteria. All birds where challenged at 28 days with a lethal dose of a genotype VII NDV. The control group died within five days after challenge. All vaccinated birds survived the challenge, including the group with no field revaccination. No adverse effects were observed after subcutaneous vaccination. Adequate protection, plus differences in serological responses and viral shedding suggesting the suitability of VG/GA strain (Avinew®) subcutaneous vaccination are discussed.

Avinew® is a registered trademark of Merial in the United States and elsewhere.

Key Words: Newcastle Disease, VG/GA strain, subcutaneous vaccination

T89 The impact of mergers on the history of the poultry industry John Donahoe Industry Consultant, Flowery Branch, GA

Industry cycles tend to follow a temporal pattern of aging, consolidation, and mergers. This drives implementation of economies of scale. Early in these cycles, you see numerous businesses founded by entre-