SUNDAY, NOVEMBER 14, 2010	
14:00-20:30	Registration
19:00	Opening Ceremony followed by Welcome Reception

MONDAY, NOVEMBER 15, 2010					
	Hall A	**Hall B**	**Hall C**	**Hall D**	**Hall E**
	Nutrition	Mastitis	Quality Products & Food Safety	Immunology & Vaccines	
08:30-09:15	Key Lecture A1 **Dale Bauman**	Key Lecture B1 **Pamela Ruegg**	Key Lecture C1 **Ian Richardson**	Key Lecture D1 **Gerhardt Schürig**	Symposium 1: New Advances in the Use of eCG to Improve Pregnancy Rates in Cattle
09:15-10:15	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
10:15-11:00	Coffee Break ,Poster Viewing Session Nº1 & Exhibition Visit				
11:00-11:45	2 Short Lectures	2 Short Lectures	2 Short Lectures	2 Short Lectures	Symposium 2: - Tissue -cyst forming protozoa
11:45-12:45	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
12:45-14:00	Lunch Break and Exhibition Visit				
	Metabolic Disorder	Milk Quality	Global Trade and Biosecurity	Water Buffalos	
14:15-15:00	Key Lecture A2 **Robert Van Saun**	Key Lecture B2 **Jeff Reneau**	Key Lecture C2 **Alejandro Thiermann**	Key Lecture D2 **Luigi Zicarelli**	
15:00-15:20	Short Lecture	Short Lecture	Short Lecture	Short Lecture	Workshop 1: Sustainable competitiveness of the dairy. A look at a global and farm level
15:20-16:20	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
16:20-17:00	Coffee Break, Poster Viewing Session Nº2 & Exhibition Visit				
17:00-18:30	Satellite Symposium I Intervet/Schering-Plough Animal Health:Bovine Sustainability				

TUESDAY, NOVEMBER 16, 2010					
	Hall A	**Hall B**	**Hall C**	**Hall D**	**Hall E**
	Animal Welfare	Infectious Diseases I: Viral	Animal Production & Economics	Small Ruminants	
08:30-09:15	Key Lecture A3 Daniel Weary	Key Lecture B3 **Hans Houe**	Key Lecture C3 **Torsten Hemme**	Key Lecture D3 **Graeme Martin**	
09:15-09:35	Short Lecture	Short Lecture	Short Lecture	Short Lecture	Workshop 2: Biotechnology in Reproduction
09:35-10:35	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
10:35-11:30	Coffee Break, Poster Viewing Session Nº3 & Exhibition Visit				
11:30-13:00	Satellite Symposium II: A controversial look at the Future of Bovine Veterinary Medicine (NovartisAnimal Health AG)				
13:00-14:15	Lunch Break and Exhibition Visit				
	Lameness	Infectious Diseases II:Bacterial	Enviromental Impact & Sustainability	The Calf	
14:15-15:00	Key Lecture A4 **Christoph Mülling**	Key Lecture B4 **Michael Collins**	Key Lecture C4 **Oene Oenema**	Key Lecture D4 **Otto Szenci**	
15:00-15:20	Short Lecture	Short Lecture	Short Lecture	Short Lecture	Workshop 3 - Animal fatty acids and human health
15:20-16:20	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
16:20-17:00	Coffee Break, Poster Viewing Session Nº4 & Exhibition Visit				
17:00-18:30	Symposium 3: Prophylaxis & Therapy of Claw Diseases in Cattle	Symposium 4: Actualizations in the diagnosis of bovine Tuberculosis	Symposium 5: Bovine Ovarian Genomics	**Symposium 6: Calf Bleeding Syndrome**	ALB Meeting

WEDNESDAY, NOVEMBER 17, 2010					
	Hall A	**Hall B**	**Hall C**	**Hall D**	**Hall E**
	Herd Health & Management:Dairy	Emergent Diseases	Genetics and Breeding	Camelids	
08:30-09:15	Key Lecture A5 **Erling Kristensen**	Key Lecture B5 **Nigel French**	Key Lecture C5 **Nicolas Lopez-Villalobos**	Key Lecture D5 **Julio Sumar**	
09:15-09:35	Short Lecture	Short Lecture	Short Lecture	Short Lecture	Workshop 4: Troubleshooting Mastitis and Milk Quality Problems on Dairy Farms
09:35-10:35	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
10:35-11:30	Coffee Break, Poster Viewing Session Nº5 & Exhibition Visit				
11:30-13:00	Satellite Symposium Pfizer				
13:00-14:15	Lunch Break and Exhibition Visit				
	Herd Health & Management:Beef	Epidemiological Surveillance	Imagenology	Miscellaneous	
14:15-15:00	Key Lecture A6 **Rodolfo Stahringer**	Key Lecture B6 **Gerdien van Schaik**	Key Lecture C6 **Marcos Colazo**	Key Lecture D6 **Otto Straub**	
15:00-15:20	Short Lecture	Short Lecture	Short Lecture	Short Lecture	Workshop 5: The food chain and the environment . Are there are options for emerging countries?
15:20-16:20	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
16:20-17:00	Coffee Break, Poster Viewing Session Nº6 & Exhibition Visit				
17:00-18:30	Symposium 7: The food chain in ruminants: a vision from a livestook national agency		Symposium 9: Ruminant Ultrasonography: state of the Art	Symposium 10: Frontline Rural Veterinary Provision: Keeping the Flame Alight	WAB Meeting

THURSDAY, NOVEMBER 18, 2010					
	Hall A	**Hall B**	**Hall C**	**Hall D**	**Hall E**
	Preventive Medicine Programs	Parasitism 1: endoparasitism	Reproductive Perfomance & Disorders	Medicine and Surgery	
08:30-09:15	Key Lecture A7 **Stephen LeBlanc**	Key Lecture B7 **Carlos Hermosilla**	Key Lecture C7 **Michael Diskin**	Key Lecture D7 **Jürgen Rehage**	
09:15-10:15	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
10:15-11:00	Coffee Break, Poster Viewing Session Nº 7 & Exhibition Visit				
11:00-11:40	2 Short Lectures	2 Short Lectures	2 Short Lectures	2 Short Lectures	Workshop 6: Practical measures to improve cattle welfare at farm level
11:40-12:40	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
12:40-14:00	Lunch Break and Exhibition Visit				
	Toxicology	Parasitism 2: ecto and hemoparasitism	Reproduction & Biotechnology	Buiatrics Education	
14:00-14:40	2 Short Lectures	2 Short Lectures	2 Short Lectures	2 Short Lectures	Workshop 7: Profits and Pathogens: why don't cows stay in herds longer?
14:40-15:40	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	4 Oral Presentations	
15:40-16:15	Coffee Break, Poster Viewing Session Nº 8 & Exhibition Visit				
16:15-17:00	Key Lecture A8 **Morrie Craig**	Key Lecture B8 **Odilon Vidotto**	Key Lecture C8 **Patrick Lonergan**	Key Lecture D8 **Carmen Fuetealba**	
17:00-17:30	Closing ceremony				
20:00	Gala Dinner (Optional)				

Bovine Neonatal Pancytopenia Symposium
XXVI World Buiatrics Congress, Santiago, Chile 2010
November 16th Room D 17.00

Abstracts:

1. Bovine Neonatal Pancytopenia (BNP) in Great Britain-an overview

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S Scholes,VLA Lasswade, Penicuik, Edinburgh, UK
K Willoughby, Moredun Research Institute, Penicuik, Edinburgh
A Colloff, VLA Truro, Cornwall, UK
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This paper presents an overview of a government -funded investigation into bleeding calf syndrome in Great Britain (GB). It describes the coordinated approach adopted in GB, encompassing three research organisations – Veterinary Laboratories Agency, Scottish Agricultural Colleges and Moredun Research Institute. Experts from a range of disciplines were co-opted onto a project team. A protocol was developed for the investigation of all suspect cases and samples were gathered and processed in an identical fashion across all the regional laboratories (England and Wales) and disease surveillance centres (Scotland). The clinical, haematological, gross and histopathological findings were recorded and found to be consistent with those reported by investigators in other European countries. By November 2011 over 160 cases had been confirmed in England, over 150 cases confirmed in Scotland and nine cases confirmed in Wales.

A comprehensive epidemiological investigation has been carried out, commencing with a case series study of 48 cases in 2009 which identified a number of potential risk factors including vaccination of the dam. In 2010 a case control study, informed by the results of the case series study, was completed in October, having involved 56 cases and 56 controls, and the results subjected to detailed data analysis. The results of this study are expected to be available early in 2011.

2. Bovine neonatal pancytopenia (idiopathic haemorrhagic diathesis, bleeding calf syndrome): histopathology

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A multi-disciplinary project was established in Great Britain (GB) to investigate bovine neonatal pancytopenia (BNP). Project-specific necropsy investigations using standardised protocols were carried out involving histopathology, microbiology, virology and toxicology. For enrolment into the project calves had to be less than four weeks of age with clinical features of unexplained/unexpected haemorrhage and/or pancytopenia, and no evidence of BVDV RNA.

Of the first 85 calves enrolled, histological evaluation of bone marrow revealed trilineage hypoplasia (TLH; concurrent severe depletion of erythroid and myeloid series cells and megakaryocytes) in 75, one showed evidence of bilineage hypoplasia (reduced megakaryocytes and erythroid series cells) and three showed regenerative responses. Two calves had evidence of vascular pathology and four showed no bone marrow or vascular pathology. No immunohistochemical evidence of porcine circovirus 2 infection was detected in bone marrow.

The anatomical distribution of lesions of trilineage hypoplasia was examined in 35 calves. All 35 showed the presence of trilineage hypoplasia in anterior sternebrae whilst 33/35 calves showed the presence of trilineage hypoplasia in femoral cavity, indicating that sternum is the site of choice for evaluation of bone marrow lesions in BNP.

Trilineage hypoplasia indicates pluripotential haemopoietic stem cell injury and the lack of megakaryocytes would explain the tendency to haemorrhage. The thrombocytopenia would be expected to develop about 8-10 days following bone marrow stem cell injury. This correlates approximately to a mean age of 12 days for reported onset of clinical signs in calves with trilineage hypoplasia and is compatible with insult to bone marrow in the immediate postnatal period.

A number of toxins have been implicated as causes of TLH (aplastic anaemia) in cattle and rare idiopathic cases in young calves have been reported in the literature. In other species immune mediated, toxic, genetic and viral causes have all been implicated.

3. Bovine Pancytopenia in Germany

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Bovine Neonatal Pancytopenia (BNP), also known as “Bleeding Calf Syndrome”, is an emerging disease reported from several European countries since 2007. The disease was first reported from Bavaria, where – up to now – 396 cases have been confirmed. In most cases (393 from 396) the dams were vaccinated with the same BVDV-vaccine (http//www.wdk.vetmed.uni-muenchen.de). Furthermore research has demonstrated a crucial role for colostrum in the pathogenesis of BNP. In recent studies, colostrum from dams that gave birth to BNP calves was administered to unrelated neonatal calves. Haematological alterations (decrease in the numbers of leukocytes and thrombocytes) were detected within two hours after colostrum uptake, but no clinical symptoms were observed. A high percentage of the latter calves developed BNP within four weeks of life.
In order to find out if alterations can be demonstrated in the CBC and blood biochemistry of calves that develop BNP later in their lives, blood samples were obtained from 61 neonatal calves in their first week of life as well as from their dams in the period from August to October 2009. The calves originated from one unit of a dairy farm consisting of two separate units of approximately 300 milking cows each, located in Brandenburg/Germany. This farm had a history of 45 cases of BNP since 2007. Most cases were confirmed by clinical and haematological examinations and/or necropsy.
Haematological examinations demonstrated alterations in at least two of the three cell lineages in ten of 61 calves (16.39 %) aged up to seven days. Six further calves (9.84 %) developed a bleeding disorder indicative for BNP at about two weeks of age. None of these calves, however, revealed alterations in CBC at sampling in the first week of life. Interestingly, clusters of calves demonstrating alterations in CBC were observed in the same weeks when BNP calves were born. The dams did not show any consistent alterations in their blood, which could be related to BNP.
These findings support the hypothesis that colostral antibodies might play a role in the pathogenesis of BNP and suggest the existence of a subclinical form of BNP. In the present study, the subclinical form could be related to the practice of feeding mixed colostrum on the dairy farm.

4. Bovine Neonatal Pancytopenia (BNP) in Ireland

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BNP is a novel disease in calves characterised by haemorrhagic diathesis and marked trilinage hyoplasia of the bone marrow. In March 2010 the first three cases of BNP were diagnosed in Ireland. On Post-Mortem examination, the calves, which were born on the same dairy farm, presented acute anaemia, multiple petechial and ecchymotic hemorrhages on serosal and mucosal surfaces, blood in faeces with absence of diarrhoea and segmental intestinal hemorrhages forming casts of blood and debris in the intestinal lumen. A range of diagnostic tests, including bacterial cultures, serology, biochemistry and PCR, failed to produce any significant result. These calves were calved normally and with normal weight. The dams were vaccinated for BVDV, *Leptospira hardjo* and *Salmonella Dublin* and a booster vaccination was given six weeks before calving. These three cases and the subsequent cases diagnosed in Ireland, up to eleven to date, showed marked trilinage hypoplasia of the bone marrow. These findings, with absence of other significant aetiological agent, prompted the diagnosis of BNP.

Since that date a standard protocol for PM examination, sampling and testing has been implemented for suspects BNP cases. Along with farm visit, a standardised questionnaire and additional testing of cows-calf pairs and colostrum has also been introduced. Eleven cases of BNP were confirmed in Ireland, six female and five male calves were affected with a median age of 16 days (min. 12 days, max. 23 days), 8 were in dairy herds and 3 in suckler herds, all received maternal colostrum. The breeds of the dams were Friesian (7), Charolais (2), Hereford (1) and Belgian Blue (1). The median parity in these dams was the 2nd parity. The herd size of the dairy enterprises was well above the average size for their own county, however, the herd size for the suckle enterprises was slightly lower. With the exception of one dam, all were vaccinated for BVDV, seven were vaccinated for *Leptospira hardjo* and some of them for *Salmonella Dublin* (5), IBR (2), Blackleg (2), respiratory diseases (1) and calf scour (1).
As a consequence of the very low disease incidence of this novel disease, it is believed that the prevalence of BNP is certainly underestimated in Ireland. Three experiments concerning the effects of hyperimmunisation of cows in calf, the effects of colostrum from BNP positive cows on unrelated calves and monitoring of haematology and immune parameters in calves of BNP positive cows are currently being undertaken by the Central Veterinary Research Laboratory at Longtown farm (Ireland) in collaboration with the Moredum Institute (Scotland).

5. Flow cytometric and immunofluorescence staining studies on bovine neonatal pancytopenia in calves

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Bovine neonatal pancytopenia (BNP) is the consensus name for a bleeding and pancytopenic syndrome in neonatal calves which emerged in 2008 all over Europe. Several observations point toward an immune-mediated pathogenesis of BNP, such as the unability to detect any infectious agent , the transfer of disease through colostrum, the fact that a single dam can give birth to a BNP calf more than once, the epidemiological spread (suddenly all over Europe with exception of certain countries (e.g. Switzerland)) and the high percentage of dams with a common BVDV vaccination history. The objective of the present study was to verify the hypothesis that BNP is an immune-mediated disease. It was attempted to demonstrate the binding of antibodies, assumed to be present in sera from dams which had given birth to a bovine neonatal pancytopenia (BNP) calf, with leukocytes from calves which survived this disease and conveniently selected calves (= controls). In addition a large set of sera from dams with different vaccination histories were screened on their level of antibody binding on leukocytes from calves, as no information on this interaction is currently available in cattle, whereas the presence of natural allo-immune antibodies is well known in humans. Leukocytes were isolated from 11 calves and incubated with sera from 113 dams with different vaccination histories, including 11 dams which had given birth to a BNP calf. Antibody binding was detected by flow cytometry with a fluorescein conjugated $F(ab')_2$ fragment of rabbit anti-bovine IgG (H&L). The mean fluorescence intensity (MFI) of the granulocytes, lymphocytes and monocytes with sera of the BNP dams was significantly higher than with sera of the other dams ($P<0.01$). High MFI values (≥ 800 units) were demonstrated with sera from 18 dams, of which 9 were BNP dams. Antibody binding on two or three leukocyte subpopulations however, could only be demonstrated with sera from 5 BNP dams. Three of these sera caused antibody binding on one or more leukocyte types in all BNP survivor calves. Two out of four control calves did not show any antibody binding with any serum. Serum from one BNP dam also caused antibody binding with leukocytes from her own calf, which survived BNP. Additionally direct immunofluoresence staining was used to demonstrate antibody binding on leukocytes in peripheral blood and bone marrow smears. In the final model, only the fact of being a BNP dam and the age of the dam were significantly associated with higher degrees of antibody binding (MFI values) ($P<0.01$). These results confirm an immune-mediated pathogenesis in BNP.