A meeting was held in Alice Springs on 19th and 20th April, 2005 to re-invigorate the Central Australia Animal Health Network for livestock animal health and welfare officers. Twenty five people from five states attended.

Vets and stock inspectors are spread thinly within the area bordered by Kununurra, Port Augusta, Broken Hill, Longreach, Mount Isa and Darwin. The objective is to maintain communication by email and verbal discussions and not be constrained by State boundaries. The Kimberley, Top End and Gulf areas are included within the network.

Private livestock vets are welcome to be part of the network. Please contact me on (08) 89992130 or email brian.radunz@nt.gov.au if you are interested.

The program on 19th and 20th April targeted cooperation between jurisdictions with common boundaries, on disease surveillance and emergency animal disease preparedness.

There was a strong agreement to maintain the network and improve communication between members.

Preliminary agreement on establishing co-located emergency animal disease control centres in the event of a disease outbreak across State borders was achieved. There is now a better understanding of the livestock identification, disease control and disease surveillance programs in central Australia.

Five pilot programs will be conducted throughout central Australia including one in the Northern Territory, to use a new web based version of Bovid for owner reporting of disease syndromes with a list of differential diagnoses with a regional profile. Bovid is a computer based cattle disease diagnostic tool. This is a tool that might be used by vets and stock inspectors as well as producers. If you are interested in having a go please contact me.

Brian Radunz
Chief Veterinary Officer
89992130

Introducing the new manager
For Primary Industries

The Department of Business, Industry and Resource Development welcomes Rod Gobney as the new General Manager of the Primary Industry Group.

(Continued on page 5)

Inside
Issue 37; April 2005

Bent Fish    Page 2
New veterinary association    Page 3
Regional round-up    Page 4
Infectious canine hepatitis    Page 5
New Tools for Viruses    Page 6
An ornamental fish and aquarium plant producer noted approximately 50% of fish in a pond to be swimming in erratic circles, apparently due to having bends in their bodies varying from subtle to right angles. The pond was primarily used for plant production, and contained mixed species and sizes of rainbowfish. All affected fish were the pygmy rainbowfish (*Melanotaenia pygmaea*) that were greater than 5-6 cm in length. One affected fish was submitted to Berrimah Veterinary Laboratories for evaluation.

At gross necropsy, spinal curvature in the dorso-ventral plane of the proximal tail region was noted. Histological examination revealed severe alteration in the normal size, shape and cellular organisation of one region of the spinal column. There was fragmentation and collapse of a vertebral body with associated fibrosis and irregular bony proliferation, consistent with earlier fracture of the vertebral column and attempts at regeneration. Adjacent muscle fibers were necrotic. There was no evidence of an infectious cause, such as bacterial, fungal or parasitic infection of the affected tissue to explain the lesions.

Subsequent close questioning of the producer revealed that the pond had been treated repeatedly in the past weeks with an organophosphate pesticide containing trichlorfon, at a rate of 0.5-2 ppm, to control aquatic invertebrate pests. Organophosphate pesticide exposure of fish occurs relatively commonly, either inadvertently, due to environmental contamination, or deliberately, for treatment for fluke, leech and crustacean fish ectoparasites. Organophosphates commonly used to treat fish are trichlorfon and dichlorvos. When added to water, trichlorfon degrades to the more toxic dichlorvos, a process that is influenced by light, high water temperature and high pH. Also, organophosphate uptake and toxicity in fish is increased by low oxygenation of the water. These factors result in variable response of fish to exposure to organophosphates, with levels greater than 0.1 ppm being potentially toxic.

Organophosphates exert their toxic effect by inhibition of acetylcholinesterase, an enzyme involved in terminating neurotransmission at cholinergic synapses in the central nervous system, some peripheral autonomic junctions and neuromuscular junctions. In intoxicated fish that don’t die acutely from central nervous system dysfunction, the muscle spasms produced by excessive and prolonged stimulation of neuromuscular junctions of the muscles of the body are thought to be sufficiently severe to result in spinal fracture and lesions, as seen in this case.

This report demonstrates how an accurate history is frequently necessary in pathological investigations in order to relate pathological changes, which are often non-specific, to a specific aetiology.

*Editor’s Note: Many thanks to the producer for assistance in preparing this article and providing the photograph.*

**Case report: Bent fish!**

**Syndrome reporting**

It’s Official - Syndrome Reporting is now a requirement for reporting nationally. The Sub-Committee on Animal Health Laboratory Standards (SCAHLs) met in Darwin 15-17th March, 2005 for their six monthly meeting. Just to jog your memory, syndrome reporting, from a State, national and international perspective, adds value to the current surveillance system and provides indications when more specific and targeted surveillance is needed. From an exotic disease perspective, syndrome reporting assumes exotic disease exclusion based on positive alternative diagnoses within a specified clinical category (syndrome).
AVA NT hosts two vets from Timor-Leste’s new Veterinary Association

Imagine trying to make a diagnosis as a new veterinary graduate, four or five hours from the office, without communication tools, or an experienced veterinary “boss” to ask for help, or the possibility of laboratory testing. That’s the situation facing some of Timor-Leste’s veterinarians. Substantial challenges face the animal health sector in the world’s newest nation – lack of infrastructure, poor communication systems and very limited laboratory capability as this small group of animal health professionals endeavour to build a system of reporting and diagnosis of livestock disease. In an effort to address issues of limited experience and professional isolation, seven Timorese vets (that’s all the vets in the country!) have formed the Timor-Leste veterinary association, with an aim to exchange information and foster learning among the group and with veterinarians internationally.

President and vice president of this new association, Dr Antoninho do Karmu and Dr Acacio Cardoso Amaral of the livestock department of Timor-Leste’s Ministry of Agriculture, Forestry and Fisheries, travelled to Darwin at the invitation of the Northern Territory’s Australian Veterinary Association (AVA NT) for their annual conference on 19th–20th March, 2005.

The conference covered a wide variety of topics applicable to both small and large animal practice. Dr Andy Sparkes, specialist in feline medicine, presented latest developments in feline medicine, while Mr Martyn King presented ophthalmologic topics. Dr Geoff Neithe gave some interesting insights into feedlot management from the point of view of feedlot operations in Turkey. A practical surgery session giving participants an opportunity to practice conjunctival grafts using the eyes of pigs was much enjoyed by all participants.

The generosity of sponsors meant Antoninho and Acacio went home loaded down with useful instruments, medicines and documents. In addition to the conference, a week of hands-on training at local private veterinary practices, the RSPCA, and Berrimah Veterinary Laboratories provided direct experience in diagnostic, surgical and laboratory techniques. The surgical practice in particular was much appreciated by the Timorese contingent.

As you can imagine in a country reliant on subsistence farming such as Timor-Leste, small animal practice is a relatively small portion of what vets do, and couldn’t currently support a full time vet. However, a growing need for small animal work exists in Dili. Government vets like Antoninho and Acacio help out and treat small animals on a part time basis, on evenings and weekends, much as occurred in earlier days in the Territory, before private practitioners were more widely distributed to remote areas. In any event, the principles of logical and objective disease investigation are applicable to all species. More important still was the opportunity for these very isolated vets to make friends and contacts with veterinarians from one of their closest neighbours. Big thanks to the AVA NT, the local AVA members in Darwin who offered hands-on training, and in particular to the Crawford Fund who provided airfares, allowances and insurance to make the trip possible.

Emma Watkins
NAQS Veterinarian
8999 2351

Out and about with animal health staff

From 18th to 22nd April 2005 Susan Walsh, a virology technician with Berrimah Veterinary Laboratories, attended a Highly Pathogenic Avian Influenza (HPAI) Workshop at the Australian Animal Health Laboratory (AAHL), CSIRO, Geelong. The CVO’s from each Australian State had requested that AAHL run this course. The other participants were from New Zealand, Queensland, Western Australia and Tasmania. The participants were able to compare the speed of onset of HPAI compared to Australian AI and to learn the various diagnostic techniques currently available for HPAI.

A date for the diary - ASM Tristate conference
A Tropical Sensation: Mozzies, Mangoes, Mudcrabs & Microbiology Darwin 8-9th July 2005
TriState meetings have been initiated and supported by the Australian Society for Microbiology (ASM) state branches of South Australia, Western Australia and the Northern Territory over many years. The primary purpose is to focus particularly on the microbiological interests of these states and bring microbiologists together in an environment conducive to information sharing. For more information, visit http://www.tristate2005.org/index.htm.
PNEUMONIA IN PIGS
Deaths in grower pigs were investigated at an outer Darwin piggery. Six pigs had died in a pen of 40 growers. Ten of the surviving pigs showed classical clinical signs of pneumonia. They were in poor condition, slab sided, coughing and had elevated temperatures. A post-mortem was performed and the lungs were consolidated ventrally in all lobes, exhibiting severe broncho-pneumonia. Laboratory tests revealed suppurative broncho pneumonia associated with bacterial infection. This is usually secondary to enzootic pneumonia, caused by *Mycoplasma hypopneumoniae*. The piggery owner had ceased preventive antibiotic therapy some four months previously. It was recommended that all pigs in the pen be treated therapeutically and that a preventive treatment regime be reintroduced.

EXTERNAL AND INTERNAL PARASITISM IN WEANER CATTLE
A group of 1200 brahman weaner cattle were transferred to a Douglas-Daly property. Twenty five died within two weeks of arrival. The property manager reported that the cattle arrived in good condition, but that many had rapidly lost weight. No mineral-urea supplements had been provided. Blood and faecal samples were taken from ten animals. All had heavy tick burdens. All had faecal egg counts over 1,000 eggs per gram, most being *Haemonchus placei*. Blood samples revealed three to be anaemic. The feed on the property was plentiful, but different from where they had originated. Weaning is a particularly stressful period and young cattle take time to adapt to different pastures. This combined with the heavy parasitic burdens caused the losses and ill-thrift.

SEPTIC ARTHRITIS IN A BULL
A nine year old charolais bull in a mob of agistment cattle in the Tennant area was found recumbent near a water trough and had difficulty in getting up. Both front legs were very swollen and some muscle wasting was evident in the shoulders. The bull also had tail rot but was otherwise functional and alert. It was decided to euthanise him. Post-mortem revealed multiple lung abscesses and degenerative arthritis of shoulder and elbow joints. *Arcanobacterium pyogenes* was cultured from the abscesses, joints and tail. It was thought that the septic arthritis and lung lesions were secondary to bacterial spread from the tail lesion.

Articles on topics of interest and letters to the editors are invited.

Please mail contributions to:

AHNNT
Berrimah Veterinary Laboratories
DBIRD
GPO Box 3000
Darwin NT 0801

Or fax to:
08 8999 2024

Or e-mail to:
ahnnt@nt.gov.au
Infectious Canine Hepatitis - a Blast from the Past

A 12 week-old male Bull Mastiff was submitted for necropsy at Berrimah Veterinary Laboratories in January this year. The dog had been lethargic and inappetant for two days and had vomited twice overnight prior to presentation at a veterinary clinic. After clinical examination, the animal had been admitted for conservative therapy. Shortly after admission the dog developed acute respiratory distress, went into cardiac arrest and died, despite intensive attempts at resuscitation. The pup had been vaccinated three days earlier and a parvovirus antigen test was negative.

Post-mortem examination revealed pale mucous membranes. There was generalised lymph node enlargement and the nodes appeared haemorrhagic. Excess bloodstained fluid was present in the abdominal and thoracic cavities. The thymus was large and oedematous. Part of the left diaphragmatic lung lobe was reddened. There was reddening of the gallbladder and urinary bladder, and red spots were present on the intestinal serosa. The mesenteric lymph nodes were enlarged and haemorrhagic. Both spleen and liver were slightly enlarged and the liver showed a periacinar pale pattern. The left endocardium was haemorrhagic. Opening of the gastrointestinal tract revealed bloodstained contents from the stomach to the colon. The contents were essentially fluid, with more mucus in the jejunum and ileum. The colonic contents were partially clotted.

When asked by a colleague about the possible cause for this essentially haemorrhagic syndrome, the response was: “If you’d asked me 30 years ago, I would have said infectious canine hepatitis but does it still occur in urban areas of Australia?” Apparently it does. Although the submitting veterinarian did not request histopathological follow-up, a section of liver was examined for our own interest. The section showed lesions, including the classic inclusion bodies, consistent with a diagnosis of infectious canine hepatitis.

The submitting veterinarian was informed of this diagnosis. He was later told that the owner had taken the pup on several camping trips in the bush near Dundee Beach. Perhaps the virus is still circulating in wild dogs.

Anton Janmaat
Principal Veterinary Pathologist
8999 2240

(Continued from page 1)

Rod comes to the Northern Territory from the Tasmanian Department of Primary Industries, Water and Environment (DPIWE), where he was the Acting General Manager of Biosecurity and Product Integrity. During his ten years at DPIWE, he had various responsibilities including acting manager of Animal Health Field Branch, Animal Health Laboratory and Animal Health Management Branch and was Chief Inspector of Meat Hygiene for four years. He was Director of Food Quality and Safety and then spent a further three years in Agriculture as director.

As the General Manager of the Primary Industries group in the Northern Territory, Rod sees that the issues within his position will be the same, but with different people and directions involved. Filling positions with a number of industry bodies such as Animal Health Australia, Plant Health Australia and Gene Technology Standing Committee has given Rod a national perspective on a range of agricultural topics. One issue that Rod is passionate about is the need for young people to become involved in agriculture.

Moving to Darwin was Rod’s “sea change” and he is looking forward to the challenge of influencing agricultural policies in the Northern Territory. His first impressions of Darwin are of the friendly and welcoming people. Rod will be joined shortly by his wife Jessie, but leaves a daughter and grandson in Tasmania.
The development of new methods for detecting insect-borne livestock diseases entering northern Australia is the aim of a new collaborative project. The three-year project is being funded by the Australian Biosecurity Cooperative Research Centre. It is a joint project between Berrimah Veterinary Laboratories (BVL), CSIRO Livestock Industries’ Australian Animal Health Laboratory (AAHL) in Geelong, and the Jerome L. and Dawn Greene Infectious Disease Laboratory (JDIDL), Columbia University, New York.

Through the National Arbovirus Monitoring Program (NAMP) and the collection of diagnostic samples, staff at BVL isolate and identify several hundred viruses each year. This is achieved through classical virological techniques such as cell culture, electron microscopy and serotyping. These techniques of virus characterisation are lengthy, costly and labour intensive. Also, a significant number of isolated viruses remain uncharacterised, posing an indeterminate threat to Australia’s livestock industries.

The researchers involved in the technology transfer at BVL are Richard Weir and Susan Walsh. Lorna Melville is the BVL project manager. BVL, AAHL and the JDIDL will work together to develop and evaluate microarrays and other rapid molecular diagnostic tools for virus characterisation. Once this technology is transferred to BVL it will run in parallel with the current serological techniques used to identify the known viruses of interest to NAMP and Australia’s livestock industries. Eventually, once fully validated, this technology will replace the current techniques giving BVL a more rapid identification of currently known viruses.

Researchers at AAHL will also instruct BVL research staff in PCR-Select suppressive subtractive hybridization, a technique which provides for the rapid characterisation of unknown viruses. Over the last 20 years, BVL has gathered together more than a thousand viral isolates circulating in the Northern Territory that we have been unable to identify using classical techniques. Using selective criteria these have been grouped according to species, date, isolation system and cytopathic effect into a number of representative groups. Around 20 unknown viruses from these groupings will be characterised with this technique.

Researchers hope that by using these new tools, complete virus characterisation can be completed in a matter of days rather than the weeks or months that can currently be required. Having this information will allow us to adequately assess the threat these uncharacterised viruses pose to Australia’s livestock industries in terms of trading livestock and livestock products.

Susan Walsh
8999 2280

---

2005 Nuffield Scholarships – Apply now

The mission of the Australian Nuffield Farming Scholars’ Association is to promote excellence in all aspects of Australian agricultural production, distribution and management through the adoption of local and international best practice and continuous development of a unique network of industry leaders and innovators.

Eligibility criteria

You are eligible for an Australian Nuffield Farming Scholarship if you are:

• an Australian citizen
• engaged in farming as an owner or manager,
• or an active member of a farming business intending to remain involved in primary production in Australia.

Academic qualifications are not a prerequisite for a scholarship. The preferred age for scholars is between 28 and 40 years, however applicants outside this range may be considered.


For more information see website www.nuffield.com.au

---

Disclaimer

The Northern Territory of Australia and the Department of Business, Industry and Resource Development disclaim any liability or responsibility or duty of care towards any person for loss or damage (including special, indirect or consequential loss or damage such as loss of revenue) suffered or caused by any use or reliance on this information. The information is provided without express or implied warranty.

While care has been taken in the production of this newsletter, it is provided as general information only and the Northern Territory of Australia and the Department of Business, Industry and Resource Development do not assert that it is complete, accurate or current. The Northern Territory of Australia and the Department of Business, Industry and Resource Development accept no liability or responsibility (including for negligence) if it is misleading or incomplete or if it contains errors, omissions or is inaccurate in any way. No person should rely on this newsletter for the purpose of taking any course of action including any serious, business or investment decisions without obtaining independent and/or professional advice in relation to their particular situation.