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President's Column



As we enter yet another year and indeed begin the second half of this first decade of the new millennium, I believe it can be reasonably argued that the challenges for our profession have never been greater. World population and the consumption of products of animal origin continue to grow at a steady pace and the numbers of livestock living in close proximity to urban human settlements are also increasing.

The current market-led expansion in animal production in the developing world, which has been described by FAO as the 'Livestock Revolution,' clearly offers many opportunities for producers, processors and for a range of professional and technical inputs, including for veterinarians. On the other hand, the public health challenges associated with livestock include those of disposal of the expanding volumes of animal waste and the increasing zoonotic disease risks, paramount of which is Avian Influenza, are most daunting. Veterinarians have a key role to play in these areas.

Achieving balance between satisfying consumer demand, improving human nutrition, reducing poverty by enhancing incomes for livestock farmers and alleviating environmental and public health stress will be no easy task. Improved policies and services for livestock production will be fundamental to ensuring the benefits from technological advances in nutritional and reproductive technologies are fully realized and achieved.

The CVA Executive is very mindful of our responsibilities and would greatly value advice and suggestions from our 'front line' on how our Journal and website in particular can be of greater value to you. We would therefore welcome communications in this direction, including as Letters to the Editor of JCVA.

In reflecting on 2005, our Asia region concluded a most successful 14th CVA Conference in Lahore, Pakistan in September, our first in this important Commonwealth member country. I would like to recognise the excellent organising effort by our Pakistan colleagues and commend our Pakistan Councillor, Dr A.A. Ramzee, for his critical role.

Our Officers also met in Fiji in late November and covered a wide range of subjects and issues. Planning is well in-train for the next Pan Commonwealth Veterinary Conference to be held in Barbados in November, 2007. We are working closely in this regard with the Organising Committee of the Barbados Veterinary Association, through our Barbados Councillor, Dr Gus Reader and our RR, Dr. Collin Boyle.

I wish to recognise the continuing valuable support provided by our principal sponsor, the Commonwealth Foundation.

In closing, I extend the very best of good wishes on behalf of the Officers, Regional Representatives and Councillors to each of you and your families for a peaceful Christmas period and a joyous New Year.

January, 2006

Instructions to Authors

The JCVA publishes original articles, case reports, short contributions and review articles. Please contact the Editor if you plan to write a review.

Send your manuscripts to:

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Covering Letter

Manuscripts must be accompanied by a letter to the Editor, signed by all coauthors.

Copyright

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Animal Welfare

The handling and use of animals in experiments must conform to the International Code of Practice for the care and use of animals for scientific purposes.

Manuscript

Submit the manuscript in duplicate. Type it on one side of A4 paper, with 10 cpi font, leaving a left-hand margin of 3 cm and numbering every fifth line. Use double spacing throughout, including title page, abstract, text, acknowledgments, references, tables and legends for illustrations. Do not underline anything. Number all pages.

Alternatively a version can be provided on a computer diskette, preferably in PC format. Acceptable word processing programs are WordPerfect and MS Word. If you use a Macintosh send your manuscript as an email attachment or on a PC formatted disc. An email attachment can also be sent to shireen@blr.vsnl.net.in

Title

The title should be concise, specific and informative but should not make an assertive claim about the conclusions of the study.

Authors' Names And Addresses

Give initials and surnames in capitals without stops. Separate the authors' names with a comma, except the names of the penultimate and ultimate author, which are separated with 'and' in lower case letters. If a single postal address is applicable, type it in full below the authors' names. If there is more than one address, provide all as footnotes. An Email address may be included. The first named author is assumed to be the author for all correspondence, including requests for reprints. Kindly include your qualifications mentioning the degrees obtained.

Layout

Articles should have a structured abstract of no more than 250 words. The subdivision is up to the author, but should encompass the Objective, Design, Procedure, Results and Conclusion. Write subheadings in lower case bold letters, followed by the text on the same line. List nonstandard abbreviations and their explanations after the abstract. Use only the abbreviated form in the text. Avoid use of abbreviations in the abstract. The main headings, following an untitled introduction, are Materials and Methods, Results, Discussion, Acknowledgments and References. The introduction should state the purpose of the study. The contents of Materials and Methods should enable others to reproduce the work. Present the findings in Results concisely and logically. Evaluate and interpret the findings in the Discussion, but do not present new data. If possible, write the main conclusions at the end of the Discussion. Headings may vary from standard if the variation makes the article more informative.

Tables

Type each table double-spaced on a separate page. Number tables in Arabic in the order they are referred to in the text. Each table should have a concise title that describes its content adequately. Information in the table must not be repeated in detail in the text. Do not use vertical lines. Use horizontal lines to separate the table from the title, and footnotes and column headings from data.

Figures

Both black and white and colour photographs are encouraged to a maximum of five only. Figures can be submitted in digital form as separate files. They should be saved as TIFF, JPEG or EPS files with a resolution of 300 dpi. EPS files must be saved with the preview option. Illustrations provided as MS Word files will not be accepted. Write legends for figures and explanations of symbols on a separate page. Legends should contain enough information to make the figure comprehensible without reference to the text.

References

Cite only those publications that are essential for the understanding of the study. Number text references consecutively, in the order in which they are mentioned, by superscript Arabic numerals. Write and number the reference list in the sequence of the references in the text. References to journals, books, conference proceedings, organisational papers, anonymous editorials, foreign language articles and internet web sites, respectively, are written as follows:

1. Gibson KT, Hodge H, Whittam T. Inflammatory mediators in equine synovial fluid. *Aust Vet J* 1996; 73: 148-151.
2. Peterson ME, Randolph JF, Mooney CT. Endocrine diseases. In: Sherding RG, Editor. *The Cat: Diseases and Management*. 2nd edn. Churchill Livingstone, New York, 1994: 1403-1506.
3. Rhodes AP. Infectious bovine keratoconjunctivitis vaccination. In: *Proceedings of the 23rd Seminar, Sheep and Beef Cattle Society*, New Zealand Veterinary Association, June 1993.
4. Australian Veterinary Association. Tethering of sows and sow stalls. In: Greenwood PE, editor. *Members' Directory and Policy Compendium*. 1997: B5.
5. Where do we stand on manpower? [editorial] *Vet Rec* 1995; 137: 1.
6. Homberger FR. Mäusehepatitis-Virus. *Schweiz Arch Tierheilkd* 1996; 138:183-188.
7. Council of Docked Breeds. The case for docking. <http://www.cdb.org>. 1992. Retrieved 15 October 2001.

List all authors if there are five or fewer. When there are more than five authors, list only the first three and add 'et al'. Write titles of books, journals and other publications in italics. Capitalise only the first letter of the book titles. Do not underline or use bold letters. The abbreviation of journals follows that of Serial sources for the BIOSIS previews database. Cite references to unpublished work only in the text, with a notation of (personal communication) or (unpublished). Please send a copy of any cited work that is included in the reference list as 'in press'. It is the authors' responsibility to check the accuracy of reference citations.

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Only acknowledge significant intellectual, technical and financial contributions. A short work warrants short acknowledgments.

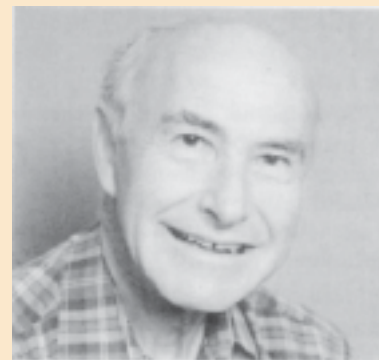
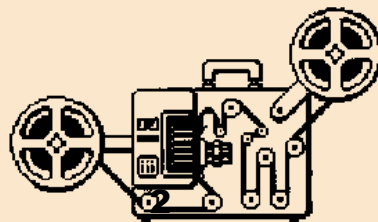
Articles of General Interest

Articles of general interest, experiences in treating of clinical cases, country reports, success stories in animal production, using innovative approaches and where possible enhancing the contribution of women and also using sustainable methods are also encouraged.

Review Articles

Reviews on a specific topic usually are written by invitation. Other authors wishing to submit a review should first enquire of the editor whether the topic is of interest to the Journal. A synopsis of the proposed article often will be requested before the writing of the full version is commenced. Reviews should provide a critical assessment of published works that have contributed to the development or understanding of the chosen topic. The soundness of experimental evidence and the validity of conclusions and recommendations in cited articles should be assessed. Conflicting observations and interpretations should be examined and evaluated.

~ Editor, JCVA



JOURNALS, BOOK AND AUDIO-VISUAL PROGRAMME



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CVA Book Programme

The CVA Book Programme is coordinated from the Ontario Veterinary College at the University of Guelph by Dr. Brian Derbyshire, assisted by Mr. Jim Brett, the College Librarian. A depot is also maintained in Australia by Dr. Jeff Cave. Books are donated by veterinarians in Canada and Australia, and they are available for distribution free of charge to graduate veterinarians, but not veterinary students, in CVA member countries in good standing. Priority is given to requests from institutional libraries, such as veterinary schools and veterinary associations, and requests from individuals are met as funds permit. Because of budgetary constraints and increasing mailing costs, the number of books which can be shipped is normally restricted to up to 30 titles for institutions, and up to 5 titles for individual veterinarians in any one year.

Requests for books should indicate the required subject areas and/or preferred titles where possible, and they should include the mailing address to which the books should be sent. The latter should be abbreviated as much as possible in order that it may be accommodated in the limited space provided on the customs declaration. It is suggested that those wishing to submit a request should first obtain a copy of the current inventories of books available by contacting, preferably by e-mail, either Dr. Derbyshire or Dr. Cave (see above for contact information). Shipments are made by surface mail, and may take several months to reach their destination. The recipients are requested to acknowledge the safe arrival of the books.

During the period January to December, 2005, 9 shipments totaling 107 books were sent from Guelph to 4 Commonwealth countries as follows: Nigeria (88 books), India (12 books), Pakistan (5 books), and Kenya

(2 books). Four of the shipments were to institutions (87 books), and 5 were to individual practicing veterinarians (20 books).

The current inventory at Guelph comprises over 400 titles and over 800 volumes, while the Australian depot holds close to 250 volumes. Most areas of veterinary medicine are covered. These include anatomy, anesthesia, animal science, avian, fish, laboratory animal & wildlife medicine, biochemistry & biology, equine medicine & surgery, farm animal medicine & surgery, histology & hematology, immunology, microbiology, parasitology, anatomic & clinical pathology, pharmacology, physiology, public health, zoonoses & epidemiology, radiology, small animal medicine, small animal surgery, theriogenology and toxicology, as well as miscellaneous titles such as veterinary dictionaries and indexes. The most extensive stocks are in small animal medicine and surgery, in which the greatest number of donations are received. A good selection of titles in anatomy, histology and theriogenology is also available. Most of the books were published during the last 20 years; older texts, for which more recent editions are available, are discarded each year.

January, 2006

**J.B. Derbyshire
Coordinator
CVA Book Programme**

CVA STUDY FUND

The Fund

This fund has been established by the Commonwealth Veterinary Association (CVA) in conjunction with the Commonwealth Foundation to honour the contributions made by Mr. John Anderson and Dr. L.P.E. Choquette in establishing and promoting the activities of the Commonwealth Veterinary Association.

Financial support to match the funds contributed by the Commonwealth Veterinary Association and the several national and local veterinary associations throughout the Commonwealth may be provided by the Commonwealth Foundation.

1. Purpose

Its purpose is to provide financial assistance to:

1. Veterinarians who are members in good standing of their respective national associations to undertake short term study visits to schools, institutions or to undertake short term study courses in veterinary medicine, animal production or related areas in other Commonwealth countries.
2. Animal Health Assistants recommended by the appropriate CVA Council Member and Regional Representative, to undergo further short-term training at a school or institution in another Commonwealth country.

It is expected that such visits will promote professional and para-professional contacts and provide grantees with new knowledge and expertise in their respective fields of interest. Study proposals which will directly benefit the rural poor and disadvantaged will receive sympathetic consideration. All proposals will be expected to describe how they will benefit the home institution, veterinary organization and community. The visit is also expected to result in a broadening of cultural experience and horizons and to promote Commonwealth understanding.

2. Guidelines

1. Grants will be limited to persons with field experience and not holding senior positions.
2. The awards are not normally available for University academic or research staff.
3. Preference will be given to related regions with 'south-south' movements being encouraged. In exceptional cases, visits to institutions outside the regions qualifying under south-south arrangement will be considered as long as the cost of the visit does not exceed the allocated fund award (Aus \$ 3000). In exceptional circumstances and where approved by the President grantees may receive training in a non-Commonwealth country within that Region.
4. The study period should be preferably between 2-3 weeks.
5. Awards will normally be distributed equally amongst Regions, however, on occasion, the President may authorize additional awards to a particular Region in any one year.
6. The study visits will be financed at a maximum of Aus \$ 3000 including a prepaid air ticket for the least expensive and most direct route.
7. Grants are provided only for periods of concentrated study or training on a particular topic or activity and cannot be made

for attendance at conferences, meetings etc., nor to underwrite a tour of visits to a number of institutions.

8. A report must be submitted to the Secretary CVA within three months of the completion of the study visit. At the completion of the study visit, the participant must receive a letter of release, which should clearly indicate duration of stay, and satisfactory completion of course. The letter should also confirm that at the time of departure, the participants have not left any debts unsettled. This requirement must be conveyed by the Regional Representative or Programme Director to the host institution before arrival of participant.
9. It will be necessary for the host institution to agree to assist in arranging suitable accommodation etc. affordable by the applicant.
10. Grantees will be expected to give one or two lectures at the host institution or veterinary association on aspects of animal health and production activities in their home country. These lectures should emphasize how their studies in the host country will benefit the rural poor and disadvantaged as well as their impact upon the environment.
11. These lectures and the discussions of topics, both professional and social, with the staff of the host institution or veterinary association will serve to further the aims and objectives of the Commonwealth Veterinary Association.

3. Applications

- i) There is a set Study Application Form/Application. Forms are available from the CVA Secretary, or through the CVA Website.
- ii) Applications should be submitted to the appropriate Regional Representative for processing, at least 6 months prior to the proposal visit.
- iii) The applicants should provide the following:
 - a) A complete curriculum vitae to the Regional Representative
 - b) Two passport size photographs
 - c) A letter of acceptance from the person who will supervise the study program in the host country
 - d) Evidence that the study has the support of his/her home institution or national association

4. Administration

- i) The Study Application Form with supporting documents must be sent to the appropriate Regional Representative
- ii) The Regional Representative will review the application and make a recommendation to the Secretary, CVA.
- iii) The Secretary, CVA will make a recommendation to the CVA President, who will make the final decision.
- iv) The Secretary, CVA will then inform the Regional Representative who will inform the candidate.

Last date of submission of request to Council Members/Reg. Rep. is 30th Oct. 2006. RRs to submit their recommendations before 30th Nov. 2006 to the Secretary, CVA.

General Articles

Taenia solium Status In The PNG-Indonesia Border Region

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K Nakaya^e, PS Craig^f, T Taufaa^g and S Flew^h

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Introduction

It has well been recognized that there are two human taeniid species worldwide; the beef tapeworm, *Taenia saginata* and the pork tapeworm, *Taenia solium*. Both species grow up into adult tapeworms in the intestine of humans exclusively, when humans ingest beef or pork contaminated with cysticerci (= metacestodes), the larval stage of these cestodes. *T. saginata* is still serious due to economic loss of contaminated cattle, including in developed countries worldwide but is believed to have almost no medical importance when compared with other diseases, since the symptoms are not so serious. By contrast, *T. solium* is very serious with sudden death of humans due to pathogenesis not of the tapeworm but of the cysticercus in human bodies. This is described as human cysticercosis, the most serious form of which is neurocysticercosis or brain cysticercosis in humans. Although the intermediate host of *T. solium* is mainly pigs, humans may be infected with cysticerci through accidental ingestion of eggs as in the case of pigs. Cysticercosis is one of the targets of eradicable infectious diseases worldwide, since its life cycle is completed through eating pork. *T. solium* cysticercosis is considered to be one of the most lethal helminthic infections for humans and spreading worldwide. This parasite completes its life cycle between humans as definitive host and pigs as the intermediate host. Humans harbor adult tapeworms through consumption of pork contaminated with cysticerci and become obligatory definitive hosts. However, humans may simultaneously become the intermediate host like pigs through accidental ingestion of eggs released from the worm

carriers, humans. Pigs harbor cysticerci through eating human feces contaminated with eggs, since pigs serve as scavengers.

Taenia asiatica

In Asia and the Pacific, there is now a third type of human taeniid species, *Taenia asiatica*. This parasite completes its life cycle like *T. solium*, since the larval stage develops in the liver of pigs (but not in the muscle) and adult tapeworms develop in the intestine of the humans in this area.¹⁻⁵ The morphology of *T. asiatica* is very similar to *T. saginata*. As far as is known, it is distributed in Asia and the Pacific only: in China including Taiwan, South Korea, Indonesia, Vietnam, the Philippines and Malaysia. Many parasitologists in Asia were puzzled that local people in these areas used to eat pork but appeared to carry the beef tapeworm, *T. saginata*. This is now believed to be *T. asiatica*. The situation with regard to human taeniasis in Asia and the Pacific should therefore be re-evaluated using molecular tools such as mitochondrial DNA (mtDNA) sequencing, which can differentiate *T. saginata* and *T. asiatica*, with epidemiological survey, including eating customs and detection and confirmation of the species of cysticerci obtained from domestic animals.^{4,5} Which specimens are really *T. saginata* and which are really *T. asiatica* are important issues as public health problems.

This issue is still under debate as to whether it is an independent species or a subspecies of *T. saginata*.⁴⁻⁶

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h Medical Department of OK Tedi Mining Ltd, PNG

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It is possible that the parasite might be a subspecies of *T. saginata*⁷ as many parasitologists believe. However, evidence has to be shown to refute the concept of an independent new species.^{8,9} The minor difference in mitochondrial DNA sequences < 5% is a key point against the concept of the new species (Yamasaki et al. unpublished).¹⁰ However, the most essential point for debate is on the sympatric situation. If it is possible to show evidence of hybrids of *T. saginata* and *T. asiatica* in co-distributed areas, these may not be independent species but genotypes of one species, *T. saginata*. Eom et al.¹⁰ and Yamasaki et al.¹¹ reported no such hybrid in China. If any one stresses that it should be a sub-species or genotypes of *T. saginata*, it is essential in science to show the evidence of hybrids. Although data on this issue so far reported appears to be too small in size to conclude, nevertheless we cannot debate this issue without new evidence on the presence of hybrids.^{4,5}

Independent of this taxonomic debate, it is essential to differentiate these two species, *T. saginata* and *T. asiatica* at least in Asia and the Pacific, since they use cattle and pigs, respectively, as the main intermediate host.

Molecular and immunological tools for epidemiological studies on taeniid cestode zoonoses in Asia and the Pacific

It is clear that taeniid eggs are very similar in morphology and cannot be identified for speciation. Gravid segments of *T. solium* and *T. saginata* are well known to be differentiated morphologically mainly based on the number of uterus branches. However, there are unclear cases of *T. saginata* which have a lower number of uterus branches and look like *T. solium*. Therefore, differences in morphology of these two species is not always sound. The presence of hooks of scolex is unique to *T. solium*, but there is a report of lack of hooks of *T. solium* at least in immunodeficient mice¹² and human cases of neurocysticercosis and may be *Cysticercus racemosus*.¹³ Such problems for differentiation of *T. saginata* and *T. asiatica* are more serious, since it is impossible to differentiate these two species morphologically.^{4,5} Therefore, it is essential to introduce molecular tools for identification of human taeniid species, at least in Asia and the Pacific.^{7,11,13-17} Sequencing of mitochondrial DNA of taeniid species has shown two genotypes of *T. solium* worldwide.¹⁵ Microsatellite DNA analysis for polymorphism of the parasite in the community is also expected to be highly useful.¹⁸ Therefore, it is essential for us to obtain scientifically sound data through classical morphological observation, identification of the species based on mitochondrial DNA sequencing, epidemiological survey of the community, especially through questionnaire

on religions, eating customs etc.^{19,20}

Distribution of human taeniid species in Indonesia

T. asiatica has been found in the Batak ethnic communities in Sumatra, especially in Samosir Island in Lake Toba, North Sumatra, where people used to eat uncooked pork with viscera and blood “Sang-Sang” (= Sak-Sang).^{3-5,20,21} A similar life style is still very common in Bali where *T. solium* has well been known historically and cysticercosis patients are still found. In Bali, a dramatic increase in number of patients of *T. saginata* infections has most recently been confirmed (Wandra et al. in prep.).^{22,23} In one village in Gianyar district, the number of taeniasis cases has become 10 times higher than a decade ago. Approximately >25% of people >15 years old are confirmed to harbor *T. saginata* in 2002 (32/125, 25.6%) and 2004 surveys (14/51, 27.5%) (Wandra et al. in prep.). Local residents are Hindu (non-strict Hindu) and still eat home-made “Lawar” during ceremonies throughout the year. Furthermore, they also regularly buy and eat “Lawar” sold at markets for general consumption. However, the eating of uncooked minced beef with vegetable and coconuts is also increasing in popularity.^{4,5} This is prevalent in many other countries in Asia and may be in other areas, where people eat beef as the economic situation improves.

What is the main factor in the control of *T. solium* in Bali and *T. asiatica* in Sumatra? It is expected to be through sustainable public health education including how to keep pigs with no direct contact with human feces.

Although there is limited direct evidence on the distribution of these three human taeniid cestodes in Indonesia, these taeniid infections are not restricted to several islands but are likely to be rather common throughout the country. However, the worst situation of *T. solium* infections in humans and pigs and dogs confirmed to date is in Irian Jaya (= Papua).^{4,5,12,19,20,24-29}

Present situation of *T. solium* taeniasis/ cysticercosis in Irian Jaya

After the first report of *T. solium* cysticercosis from Irian Jaya in 1973,³⁰ there have been several original reports showing the seriousness in Irian Jaya.^{12,19,20,24-26,28} A brief historical overview was published³⁻⁵. The most recent international collaboration project by Indonesian, Japanese, American and English researchers has revealed the real situation of *T. solium* cysticercosis in Jayawijaya, Irian Jaya. This international group has applied all tools available for identification of the species from humans and domestic

animals:⁷ questionnaire on the daily lives of the local residents, including history of epileptic attacks, serology for detection of cysticercosis patients, fecal examination for detection of eggs, copro-antigen test, copro-DNA test, pathological examination and identification of mitochondrial DNA of resected nodules, treatment of cysticercosis and/or taeniasis suspected persons with praziquantel, detection of expelled segments, identification of the species by morphological and mitochondrial DNA sequencing, experimental infections in severe immunodeficient mice using eggs.^{4,5,7}

Historically, cysticercosis of *T. solium* was recognized in Paniai district, in the central area in Irian Jaya, Indonesia in the early 1970s. In the 1990s, a rapid increase in the number of epileptic seizures and burns was recorded from Jayawijaya district, eastern Irian Jaya. There were 1120 new cases of burns and 293 new cases of epileptic seizures during 1991-1995. Some of these cases were confirmed to be due to *T. solium* by serological and mitochondrial DNA sequencing.^{19,20}

Wandra et al.²⁰ revealed that the majority of local residents in Jayawijaya over 18 years old examined by 1997 was expected to be suffering from cysticercosis⁴. Local people in Jayawijaya with anamnesis of epileptic seizures were suspected to be neurocysticercosis (NCC, n = 18), whereas those with subcutaneous nodules were suspected to be subcutaneous cysticercosis (SCC, N = 31). People at risk in Jayawijaya (n = 47) were also examined. The majority of individuals with any symptoms of epileptic seizures (12/17, 70.6%) or subcutaneous nodules (20/32, 62.5%) were serologically confirmed to have been exposed to the larval stage of *T. solium*. Approximately 83% of people with epileptic seizures and subcutaneous nodules (10/12) were confirmed serologically and morphologically and mitochondrial DNA sequencing of resected nodules as *T. solium*. Simple diagnoses based on anamnesis of epileptic seizures and neurologic examination for NCC and physical check of nodules by palpation (SCC) were reasonably reliable. It is strongly suggested that approximately 26% of healthy people at risk in endemic area have also been exposed to larval stag of *T. solium*. A follow-up study carried out in 1997 revealed that five of eight cases examined from the 12 serologically confirmed NCC/SCC cases of people at risk had epileptic seizures (n = 2), headache (n = 1), or subcutaneous nodules in the upper arm (n = 2). Therefore, it was expected that approximately 47 % of the local people in Jayawijaya were serologically confirmed NCC/SCC.

By contrast, people in non-endemic Merauke (n = 30) were also examined. Only case from Merauke was found sero-positive and this was a transmigrant from another

island (South Sulawesi). Although it has been reported that Paniai, Jayawijaya and Manokwari districts in Irian Jaya have been contaminated with *T. solium* taeniasis/cysticercosis,^{12,19,20,24-26,28,30,31} it is not expected that Merauke district has already been contaminated by this parasite. However, follow-up surveys will be important in several other districts including Merauke in Irian Jaya. Based on an additional survey in 1999, approximately 50.6% (81/160) of local people and approximately 70.4% of pigs (50/71) in Jayawijaya were serologically expected to have been exposed to *T. solium* cysticerci.²⁶ Such a situation of high endemicity appears to be still stable.¹²

As dogs and pigs roam freely with direct access to human feces in the community, the antibody responses in dogs as well as pigs was tested. From dogs which showed high titers in ELISA against the specific antigens, *T. solium* cysticerci were detected.²⁸ Approximately 10.9% of dogs (7/64) examined at random showed antibodies.²⁸ To date there has not been a human case of *T. saginata* or *T. asiatica* in Irian Jaya.

Present situation of *T. solium* taeniasis/cysticercosis in PNG and in Timor

As taeniasis/cysticercosis was possibly accidentally introduced into Irian Jaya after it was governed by Indonesia from 10th September, 1969 and the contaminated areas has been spreading from the central area (Paniai district) to the east (Jayawijaya district) and to the west (Manokwari district),²⁰ it is important to know if the parasite has been introduced into Papua New Guinea (PNG).³² There was one case report that one NCC suspected person was serologically detected from >100 Irianese refugees in PNG.³³ A PNG/Australian group carried out a field health survey among Alice River villages in PNG along the border in 1997, following ethical approval by PNG Government.^{5,20,34} Tests done included serum antibody responses against Japanese encephalitis and against *T. solium* etc., since some of the villagers were Irianese refugees. One very strong positive, three positive and 12 weak positive persons were detected in 541 human serum samples (3%). One strong positive person, a 29 years old woman whose spouse was a Papuan (= Irianese) refugee and with three children, showed occasional headaches indicating possible neurocysticercosis. Other positive cases showed relatively weak responses and were possibly exposed to eggs of *T. solium*. Most of these persons were from Dome village which has the highest number of Irianese refugees.

As eating pork is prohibited in Muslim societies, taeniasis/cysticercosis of *T. solium* is expected to be spreading outside of Muslim societies in Asia and the Pacific.

In West Timor, where the majority of the population is Christian, many cases of seizures and subcutaneous nodules have recently been reported from the local health centers.³⁵ Similar informal messages are coming from East Timor. It is therefore desirable to undertake field surveys in these areas for the prevention and control of cysticercosis outbreak in the near future.

Dogs may serve as alternative intermediate host of *T. solium*

The most recent work by this research group with Indonesian colleagues has revealed that dogs may contribute like pigs and become intermediate host.^{12,19,26,28} As eating of dog meat is not that rare worldwide, this issue should not be ignored. In the majority of the endemic areas in developing countries, pigs and dogs and chickens all have free access to human feces especially in rural areas. Among these animals, pigs and dogs are the most important scavengers.

Conclusion

In Asia and the Pacific, there are three species of human taeniid tapeworms: *T. solium*, *T. saginata* and *T. asiatica*. It will be important to establish modern technology for the identification and differentiation of these three species, since such identification is essential for the development of future strategy for the control of human taeniasis and cysticercosis in humans and in animals.

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The Veterinary Profession in Sri Lanka and its Contribution to the Livestock Sector

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Introduction

Sri Lanka is a tropical island located in the border of the equatorial belt and separated from the southern tip of India by a distance of 29 km at the nearest point. Its land area is 65000 km² and has a maximum north-south length of 435 km and an east-west width of 225 km. The island has a mountainous area in the south - central region rising to a peak of 2500 m. This is surrounded by plains narrow in the western, southern and eastern sides but widening into a vast expanse of land in the north of the mountains.

The temperature in the plains range from 27°C – 35°C while in the hill country it is cooler and ranges between 10°C–25°C. The rainfall is largely dependent on two monsoons, - the South-West Monsoon from April to September and the North-East from October to March. The central hills and their south-western slopes benefit from both monsoons and are therefore referred to as the wet zone. Those areas in the north-east, north-central and parts of the north -western region receive rains from the north east monsoon only and therefore have a prolonged dry period, and are referred to as the dry zone. Other areas are referred to as the intermediate zone. Based on the elevation of the land above sea level the island is divided into low, mid and hill country. By a combination of climatic conditions and topography, distinct agro-climatic zones are identified.

According to a 2004 census Sri Lanka has a cattle population of 1.1 million, 280,000 buffaloes, 414,000 goats and 67,000 pigs. The types of animals and their distribution depend on the agro-climatic zones, and other factors such as the availability of processing and marketing facilities. Exotic temperate breeds of cattle and their crosses are reared in the cooler climes of the hill and mid countries. Zebu types and indigenous cattle are found in the warmer dry plains. The former are intensively managed while the latter are managed under an extensive system, grazing freely during the day and paddocked at night. While a small number of buffaloes belong to exotic breeds (Murrah, Nili Ravi) and their crosses, most are of the indigenous type and are reared exclusively in the plains. Goats are reared mostly in the plains. Pig farming is concentrated in the south-western coastal belt while the

poultry industry, both egg and broiler is concentrated mainly in the western, north-western and central regions.

Sri Lanka currently has a human population of 19.7 million, the most densely populated region being the south-west quarter of the island.

History and Development of the Veterinary Services

Records reveal that an indigenous system of veterinary medicine was practiced in Sri Lanka as far back as the fourth century AD. Western veterinary medicine was introduced to Sri Lanka (then known as Ceylon), by the British colonial regime in 1889 with the appointment as government veterinary surgeon a British national. The first Sri Lankan to qualify as a veterinarian was appointed in 1895. By the year 1930 there were 17 veterinarians operating a state veterinary service. The veterinary department which was originally established in the capital city of Colombo shifted to Peradeniya, in the central region in 1935 and was amalgamated with the Department of Agriculture. The last of the British heads of veterinary services retired in 1944 and the first Sri Lankan head of veterinary services was appointed.

Following amalgamation with the Department of Agriculture, the veterinary department became the division of Animal Production of Health (AP&H) and its head was designated Deputy Director (AP&H). In 1963 a post of Chief Veterinary Surgeon was also created to exercise supervisory control over the regional veterinary services. With further development of the service, three supervisory officers designated Regional Veterinary Officers were appointed to supervise the services in three distinct regions carved out for them. In 1978 a separate department of Animal Production and Health was established; it was headed by a Director AP&H and Deputy Directors in charge of specialised functions such as Research, Human Resource Development, Animal Health, Animal Breeding and Planning.

In 1987, the administrative structure of Sri Lanka

underwent change and nine Provincial Councils were set up in keeping with the government policy of decentralising the administration (Later the Northern and Eastern Provincial Councils were temporarily amalgamated) The veterinary services too fell in line with this change. Functions such as planning and monitoring of all veterinary services in the island, research and training were retained by the central government whilst implementation was devolved to the provincial councils. Eight provincial directors of AP&H were appointed.

In the year 2000, the central Department of AP&H was upgraded and accordingly the head was elevated to the rank of Director General and the deputies to Directors.

Presently the total number of veterinarians employed in the state sector is around 420, and this includes those employed in the specialised divisions of the central Department of AP&H and those in the provincial services. A few are also employed in other state organisations. Additionally, the state employs 693 diploma level trained para-veterinary staff who work under the direction of the veterinarians.

Research and Laboratory Services

The first veterinary laboratory was set up in Colombo in the year 1911. This was purely a diagnostic laboratory to support the disease control programs. In 1939, this laboratory shifted to Peradeniya and in 1941 it was named as the Veterinary Research Laboratory. Staffed by a mere 4 veterinarians, it continued to perform disease diagnostic and investigational work as its main functions. With the passage of time this laboratory undertook to produce vaccines in response to the needs that arose from time to time Among these were vaccines against rinderpest anthrax, black quarter, brucellosis, haemorrhagic septicaemia and foot and mouth disease in cattle and Newcastle disease and fowl pox in poultry.

Out of this laboratory, the Veterinary Research Institute (VRI) was established in 1967. At the inception it had scientific staff of only eight officers. Currently it has grown to 45 and a middle level technical staff of 52 in their permanent cadres. At any given time 10-15 persons of the latter grade are employed as contractual staff according to needs. Together with the support staff the total staff of this institute exceeds 150. The institute has eight research divisions and three technical service divisions. Since 1985 it has been recognised by the Food and Agriculture Organisation of the United Nations as a Regional Reference Centre for Haemorrhagic Septicaemia for the Asia-Pacific Region. The research complex also includes a separate

Veterinary Vaccines Laboratory, a poultry research station and five Regional Veterinary Investigation Centres, which are technically linked to the parent institute.

Veterinary Education

In the early years Sri Lankans desiring to become veterinary surgeons had to qualify in the veterinary colleges in India. Veterinary education at a university level commenced in 1947 and the first batch of students were recruited in 1948. A department was set up within the faculty of medicine in Colombo to teach subjects such as anatomy physiology, histology, embryology, pharmacology and general pathology. Veterinary as well as medical staff participated in the teaching. When the students reached the clinical years a Department of Veterinary Science was established within the University of Peradeniya and amalgamated with the University's Department of Agriculture and a Faculty of Agriculture and Veterinary Science was set up. In 1973, the department teaching non-clinical subjects in Colombo shifted to Peradeniya and was placed under the umbrella of this faculty. It was in 1980 that an independent faculty of Veterinary Medicine and Animal Science (FVMAS) was set up.

At its inception the degree course in veterinary science was designed according to the British pattern. With the passage of time it was realised that such a course was not the best for Sri Lanka. The principal employer of the products of this faculty was the state department and the duties of these veterinarians consisted of a considerable amount of animal production and extension work. In keeping with this need the university curriculum was revised from time to time giving a greater emphasis to these areas. In the last curriculum revision done in the 1990's additional subjects such as fish biology and aquaculture, wildlife biology, wild life and zoo animal conservation and management, and food technology and quality control were added. These new fields were felt necessary to equip the veterinarians to fit into the expanding employment opportunities which developed around this time, in addition to the traditional areas of employment. In order to improve the quality of service of these veterinarians, short courses on business management, human resource management communication and computer studies were also included.

Presently the FVMAS has an academic staff of 41, with five departments- veterinary basic sciences, pathobiology, pharmacology and public health, veterinary clinical sciences and farm animal health and production. The four year course leads to a degree of bachelor of veterinary science. Presently there are no formal post graduate courses but provision exists for MPhil and PhD programs by research. Plans are afoot

to commence formal MVSc programs in the near future.

In the past the para veterinary personnel were those who qualified through a two year diploma program in the schools of agriculture of the state Department of Agriculture. Later two schools of Animal Husbandry were set up by the state department of Animal Production and Health. The two year diploma program of these institutions produced personnel more suited to work in the para veterinary services.

An Institution of Continuing Education in Animal Husbandry was also set up by the state department. This institution conducts short term continuing education programs for all grades of officers in the livestock sector.

Legislation Relating to the Veterinary Services

The practice of veterinary medicine and surgery in Sri Lanka is regulated by the Veterinary Surgeons and Practitioners Act of 1956. Under this act a statutory body called the Veterinary Council of Sri Lanka is set up. This council consists of a body of persons some of whom are appointed ex officio by virtue of the positions they hold and others who are elected by the registered veterinary surgeons. Registration in the council is mandatory for the practice of veterinary medicine and surgery in Sri Lanka and those eligible are veterinarians who hold a BVSc. degree of the University of Peradeniya or a degree from any other university abroad deemed equivalent by the council. Prior to registration, all graduates should also successfully complete a six month internship. Additionally, overseas graduates are also required to pass an examination set on a prescribed syllabus purely to ensure that they are sufficiently acquainted with the conditions of veterinary practice in Sri Lanka. Foreign veterinarians working temporarily in Sri Lanka are granted temporary registration for a specified period.

At its inception in 1957, 88 veterinarians were registered under this act. Presently this number has risen to 1276. Of this number about 50% are living in Sri Lanka, whilst others are employed elsewhere. The Animals Act provides for ownership, identification transport and slaughter of animals. The Animal Diseases Law provides for the control of animal diseases within the island and the prevention of introduction of exotic diseases into the country. The Animal feeds Act regulates the import, manufacture and sale of animal feeds and feed ingredients and their quality control. Under this act there are 22 registered manufactures of animal feeds and vitamin mineral supplements. One of the vitamins - mineral supplement manufactures also export their products. There are 72 registered importers of feed ingredients.

The import of compounded feeds is banned under this act, except for shrimp feeds. Other legislation relating to the veterinary services are the rabies ordinance, the butchers' ordinance, and the prevention of cruelty to animals' ordinance.

The Veterinary Drugs Control Authority (VDCA) regulates the sale and use of veterinary pharmaceuticals, vaccines and animal feed supplements in Sri Lanka. It consists of a body of professionals appointed by the Minister in charge of livestock and veterinary services. Only products registered with the VDCA are approved to be imported or manufactured and sold in the open market.

Employment Patterns

As mentioned earlier currently, only about 50% of the registered veterinarians are employed in Sri Lanka. In the early years the state Department of Animal Production and Health was almost exclusively the employer of graduating veterinarians. With the passage of time other avenues of employment opened up.

Currently about 420 veterinarians are employed in the state sector. A vast majority of them are in the central and provincial departments of animal production and health in various capacities. Other state organisations employing veterinarians are the National Livestock Development Board the Municipalities of the principle cities (for public health work), the Department of Health Services (for rabies control) and the Department of Wild Life and the Zoological Gardens. About 60 veterinarians are engaged in teaching at a university level. Another approximately 120 veterinarians are employed in the private sector, - the veterinary drug industry, animal feed industry, in private sector farms, particularly poultry breeder farms and some in private practice of their own. The rest are those who have retired from active practice.

The proportion of women veterinarians has risen rapidly. A survey done in 1998 revealed that in the preceding four decades the proportion of women veterinarians have risen from 1.7% to 53%. Women accounted for 43% of veterinarians in the field services.

Professional Associations

In the year 1940, a small group of veterinarians formed what was then called the Ceylon Veterinary Association (Now Sri Lanka Veterinary Association -SLVA). In the early years the main objectives of this association was to struggle for the enhancement of the status of the veterinary profession and to urge the government to commence veterinary education at a university level. Over the years

the association has grown and currently it has a membership of around 1200, including some who are resident overseas.

The association holds an annual convention regularly which is of 2-3 days duration. The 57th annual convention was held in 2005. The association also publishes a journal, the 50th volume of which was published in 2003. The SLVA also conducts seminars on topics of current importance in different regions of the country.

The Sri Lanka Veterinary Association joined the Commonwealth Veterinary Association in 1972.

In recent years with the growth of the number of veterinary private practitioners, most of whom are small animal practitioners, The Sri Lanka Association of Companion Animal Practitioners was formed. Its membership stands at around 100, and this association also holds scientific seminars on topics of interest to its membership.

Impact on the Livestock Sector

Cultivated agricultural land constitutes about 30% of the total land area of Sri Lanka. About 75% of this land consists of smallholdings. It is estimated that 33% of these smallholdings contain livestock which enable these smallholders to stabilise their incomes throughout the year. Except perhaps in the poultry sector, the number of farmers rearing only livestock is negligible. This smallholder dominated agricultural-livestock farming community depends heavily on the free extension and veterinary services provided by the state.

Currently agriculture contributes 18% to the national GDP, and livestock accounts for 6% of the Agricultural GDP or just over 1% of the national GDP.

Over the past few decades in the livestock sector, the industry that has shown a significant progress is poultry. During the period 1990/91, the per capita availability of chicken meat was 0.84 kg. In 2004 this has increased to 4.1 kg. During the same period the per capita availability of eggs has increased by a lesser extent, from 48 to 67. Currently, there are 43 registered poultry breeder farms producing both broiler and layer commercial day - old chicks. Two of these breeder farms import grand parent stock, while the others import parent stock. The poultry industry is mainly in the hands of the private sector, the government sector merely playing a regulatory role, and providing some support services.

The dairy industry has made slower progress. Over the last few decades a slow but steady increase in milk production has been recorded despite a steady decline in

the number of dairy cattle and buffaloes. This trend results from the increased productivity of the animals by upgrading through the artificial insemination program. Currently, there are four semen processing centres in the country, three of which are run by the state and one privately owned. One of the state centres produces frozen semen. Frozen semen is also imported when necessary. Inseminations are done by para veterinary personnel, some of whom are state employees and some private inseminators. Private inseminators are trained and licensed by the state and are also provided with inputs such as semen and equipment. Currently only 17% of Sri Lanka's milk requirement (to reach a consumption level recommended by human nutritionists) is produced locally. The rest is imported

Sri Lanka has no organised beef industry. The source of beef is the male indigenous animals grazing freely in the natural pastures and the bull calves from the dairy industry. Abattoirs are run by the municipalities and other local authorities. Slaughter of female cattle and all buffaloes is banned by law.

Indigenous buffaloes and cattle are used extensively as draught animals in the rice fields.

The consumption of pork is in general low and is confined mainly to the cities particularly in the western coastal belt. A high proportion of pork produced go to the processors where it is converted into value added products part of which finds its way to the local market and part to the tourist industry. Goats are reared in Sri Lanka for a dual purpose - milk and meat. Goat milk has a very limited but defined market and fetches a premium price. Goat meat is also sold locally at a price higher than all other meats.

Control of Infections Diseases

Control of poultry diseases through vaccination made a significant impact on the industry. In the early years of the industry, poultry flocks were devastated by outbreaks of Newcastle disease. Its control by vaccination made the most significant impact.

Currently, a number of poultry vaccines are imported by the private sector under the control of the Veterinary Drug Control Authority and used in routine disease prevention programs. These include vaccines against Newcastle disease, fowl pox, Marek's disease infectious bursal disease mycoplasma and salmonellosis. Whilst some poultry breeders import fowl cholera vaccine others use locally produced vaccine made against locally isolated serotypes.

Among the diseases affecting cattle and buffaloes, haemorrhagic septicaemia (HS) black quarter (BQ),

brucellosis and foot and mouth disease (FMD) are endemic in Sri Lanka. HS which caused heavy losses in buffaloes and cattle has now been largely controlled by routine vaccination in mass, seasonal vaccination programs. BQ and FMD occur sporadically and are also controlled by vaccination. Only FMD type O occurs in Sri Lanka. Type C was introduced in 1969 through imported animals but was eradicated in the early seventies.

Records of rinderpest (RP) are available since the 1880's. Major outbreaks are recorded in 1926 and 1942. It was eradicated by vaccination in 1946. The disease however was re-introduced through goats entering the country without quarantine in 1987. This was also eradicated by vaccination and no outbreaks were reported after 1994. The Office Internationale des Epizooties (OIE) has granted provisional freedom from RP in 1999; freedom status is awaited in 2005.

Brucellosis is prevalent in certain parts of the country, highest incidence being in the low plains of the north and east and being almost totally absent in the hill and mid country. The strategy for control recommended is test and disposal in low incidence areas and S 19 vaccination in the higher incidence areas.

Anthrax which was prevalent up to the 1960's was controlled by vaccination, and is virtually non existent now.

The only infectious disease of pigs recorded is swine fever, which was introduced in the early 1980's. Sporadic outbreaks occur in diminishing frequency, and are controlled by vaccination in outbreak areas only.

Vaccines

Some of the vaccines used are locally produced by the government sector, while most are imported. Commencing early 1960's to the early 1990's the Newcastle disease fowl pox and FMD vaccines were locally produced. In the early 1990's their production was discontinued since production of these vaccines for the limited market in Sri Lanka was found to be uneconomical. Hence these and all other poultry vaccines are now imported. In the eradication of rinderpest in 1946 it was a locally produced vaccine that was used but with the reintroduction in 1987 imported vaccine was used.

Vaccines against HS, BQ and brucellosis, however continue to be produced in Sri Lanka as is a vaccine against babesiosis which occurs among exotic breeds of cattle in the hill and mid country. Swine fever vaccine is imported. The import of all vaccines is subject to the control of the VDCA.

Sri Lanka is an island in the Indian Ocean, situated in the equatorial belt and with a land area of 65000 km². A state veterinary service was first established in the island in 1889 with the appointment of one government veterinary surgeon. Through the decades following, the service has grown steadily and in 2005 there are over 400 veterinarians operating the state veterinary services.

The first veterinary laboratory service commenced in 1911 developed into a fully fledged Veterinary Research Institute established in 1967.

Veterinary education at a university level commenced in 1948. This veterinary teaching institution which from time to time was affiliated to and supported by the medical and agriculture faculties of the university eventually gained independent faculty status in 1980.

The Veterinary Surgeons and Practitioners Act was first passed in Parliament in 1956. At its inception in 1957, 88 veterinarians were registered under this Act and in 2005 there are 1276 registered veterinarians. About 50% of this number work in Sri Lanka in the state services in teaching or working in private livestock or livestock related enterprises or are self employed in private practice. The rest have left the island to work elsewhere. Around one half the numbers of veterinarians working currently are women. Sri Lanka has an active professional association which was formed in 1940 and its current membership is around 900. It holds a regular annual convention, holds seminars periodically and publishes an official journal. It has been a member of the Commonwealth Veterinary Association since 1972.

The profession has contributed significantly to the development of the livestock industries. The most significant growth is seen in the poultry industry. The artificial breeding services have contributed to the upgrading of the indigenous stock. The most significant contribution has been the control and eradication of livestock and poultry diseases through efficient laboratory diagnostic services and vaccination programs.

Summary

Avian influenza jumps species in Indonesia

On July 21, 2005, Indonesia reported the country's first laboratory-confirmed human death from avian influenza A H5N1, adding to 54 other human fatalities throughout Asia.

Samples from a 38-year-old foreign ministry worker living on the outskirts of Jakarta, tested positive for H5N1 AI virus and the man's two daughters aged 9 and 11, also died of severe pneumonia compatible with H5N1 infection, but the cause of their deaths has not yet been confirmed.

The only previous evidence of human exposure to AI viruses in Indonesia was the detection of antibody in one serum sample from a man in southern Sulawesi. Serum samples have since been collected from contacts of the recent cases - including the family, neighbours, and healthcare workers - and any possible poultry contact is being investigated.

The island archipelago also became the first nation to destroy pigs in its efforts to contain the rapid spread of the deadly bird flu, which has resulted in the death or slaughter of 9.5 million chickens throughout Indonesia.

200 pigs were recently suspected of being infected but just 18 animals tested positive for the H5N1 strain of the virus and were eventually destroyed at two farms near Jakarta.

The World Health Organisation (WHO) confirmed on July 21, 2005 that there have been 109 human cases

of avian influenza A (H5N1) in Vietnam (87), Thailand (17), Cambodia (4) and Indonesia (1) resulting in 55 fatalities.

Officials from the Indonesian Ministry of Agriculture prepared for the worst case scenario and in July about 44 hospitals nationwide were put on alert to receive and treat potential bird flu patients.

In response to our nearest neighbour's zoonoses crisis, Australia's Federal government recently pledged \$5 million to assist pharmaceutical company CSL to bring forward clinical trials of a prototype bird flu vaccine by eight months to September 2005.

The vaccine could be registered as early as August 2006 and may protect against the present H5N1 avian influenza strain. The British government is also taking the bird flu threat seriously and recently announced its plan to stockpile two million doses of bird flu vaccine for health workers in case of an outbreak.

To test Australia's preparedness arrangements, Exercise Eleusis - will be held in November 2005 to simulate a zoonotic disease outbreak of AI in Australia. The scenario will involve agricultural and health departments across Australia, as well as agricultural industries.

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Alternatives To Antibiotic Growth Promoters In Poultry Feeding*

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Introduction

Antibiotics have played an important role in controlling diseases in animals for more than 50 years. Antibiotics have also reduced suffering and the spread of disease and have improved production efficiency in farm animals. Although scientific evidence still continues to reaffirm the safety of many antibiotics, new evidence is emerging to question the safety and efficacy of some antibiotics used in animals. These findings, together with fear and politics have forced animal production authorities in many countries to restrict the use of antibiotics in poultry production. The situation has become very critical for the group of antibiotics used as growth promoters, as opposed to therapeutic antibiotics. There have been volumes of research and feeding experiments conducted for the last several years to find out alternatives to antibiotic growth promoters (AGPs), with varying degrees of success. In the early days AGPs were largely used in countries where the poultry industry was well-developed, but gradually spread to other countries later. Today antibiotic growth promotion has become an essential tool for performance enhancement in many countries. It has become an ideal solution for many farm situations and its role is more evident in countries with sub-optimal management conditions and adverse climates. Most countries in the Asian region, specifically those in South East Asia fall into this category.

Many exhaustive reviews have appeared during the last few years on the use, misuse and restriction of ban of AGPs around the world (Bedford 2000, Barton 1998, Revington 2002). Hence, this paper will be mainly confined to a few specific points relevant to countries with developing poultry industries, like those in South East Asia. The paper will briefly discuss the AGP scenario in general and attempt to critically evaluate the genuine need to find out alternatives giving due recognition to socio-economic, political and farming systems in the region. The importance of considering the above situation in the individual countries as a basis for decision-making is highlighted. Potential risks and losses in adopting generalised recommendations without giving due respect to the specific conditions prevailing in individual countries are stressed.

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Changing Trends in Poultry Production

With the rapid economic growth of many developing countries, demand for animal proteins, especially for poultry products will continue to grow (Devendra, 2004; Executive Guide to World Poultry Trends, 2004/2005; FAO, 2004; Waldroup, 2002; Brufau, 2003). Today, the consumer will demand more quality products for lesser cost. Farming systems and management conditions are changing fast, compared to any other era. Commercial poultry operations are becoming bigger and intensive. Farms possessing environment control houses, which is seen only in developed countries few years ago, are now becoming a less rare item in many developing countries. Production of poultry for export market had become more competitive. However, a new "green trend" towards organic products, free range poultry largely supported by welfare groups are also emerging in some parts of the world to cater to specialized market (Mack et al., 2005).

Present Status of Use of Antibiotic Growth Promoter

The AGP regulations related to ban or restrictions in usage are more strictly adopted in EU countries compared to other parts of the world. From 1998, the EU prohibited the use of all antibiotics used in human medicine for animal growth promotion. Furthermore, it authorized only four antibiotics (flavophospholipol, sodium monensin, sodium salinomycin and avilamycin) not used in human medicine for agricultural use, without prescription. This prohibition was further enforced and from June 1999, majority of antibiotic growth promoters used in poultry feeding were removed. EU has now approved only avialmycin and flavomycin to be used in broiler feed as growth promoter. The approval for these molecules is only till 2005.

The United States, by contrast, has little or no restriction on the use of any AGPs. It has also 19 different antibiotics to be used for growth promotion. Of these, at least 7 are used in human medicine, including penicillin, streptomycin, and verginiamycin. The USA is guided by the JACFA AND CODEX recommendations on MRLs of each molecule used

in chickens.

Some form of restrictions or control of AGPs use has commenced or about to commence in many developing countries which have extensive poultry industries. However, their present list of AGPs, far exceeds the list available in developed countries.

Sri Lanka for example implemented its animal feed regulation in 1998, (Animal Feed Act No.15 of 1988), and list of AGPs permitted for poultry has been revised several times, and at present includes only 4 AGPs.

Benefits of Antibiotic Growth Promoters

Before suggesting the alternatives, one should be aware of the benefits and the mode of action of the AGPs. The AGPs have undoubtedly improved the animal performance and health status, by modifying the intestinal microflora. Most AGPs target gram positive organisms which are associated with poor health and performance of the animals. AGPs, show no benefit on the performance of germ free animals (Bywater, 1998).

The intestinal microflora is believed to reduce animal efficiency through the following mechanisms (Muramatsu et al., 1994);

- Competing with the host for nutrients in the gastrointestinal tract
- Cause diseases, especially necrotic enteritis
- Destroy digestive enzymes
- Change the gut size
- Stimulate immune reaction causing depression in appetite

Whatever the mechanism of action, the AGPs, had given attractive returns for producer, with significant improvement in daily growth rate and meat quality. Hughs and Herritage (2000) reported that the improvement in growth rate is between one and ten percent, where as meat quality is improved by way of less fat and high protein.

According to Jongbloed (1998), the ban of AGPs will reduce the efficacy of feed utilization in the Netherlands between 3 and 8%. On commercial farms, where the standards of hygiene and management conditions are often not as high as those at research stations, the effects of AGPs ban will be even greater (Gropp and Schumacher, 1997). Many studies confirmed that the ban will affect mainly broiler production, while laying hens will be less sensitive. The Danish Poultry

Council statistical report, which included almost all of the commercial flocks in 1998, concluded that "the mean feed consumption at 42 days of age increased from 1.78 kg feed before the ban to 1.82 per kg of live bird after the ban". There was an increase in the number of flocks suffering from diseases related to *Clostridium perfringens*, such as necrotic enteritis and chronic hepatitis.

In Spain, the health, environmental and economic implications of AGPs prohibition was studied, and it was estimated that increased production cost of around 3.5-5.0% would be incurred.

The response to AGPs, however, is variable and may, to a large extent, be dependent upon the environment in which the animals are raised and the diet offered to them. It is important that an understanding of this interaction is gained before discussing strategies to minimize the losses resulting from their removal from the diet.

Following results are taken from a field study conducted in Sri Lanka (Gunaratne, 2004, unpublished) which illustrates the typical, sub-optimal management and field situations that exists in many developing countries. The results are graphically shown in Fig 1. Without AGPs, it is becoming practically impossible to raise poultry successfully in most farming situations. There is a good response to AGPs supplementation, in terms of animal performance and economic returns. The response shown to different AGPs varied, often newly introduced AGPs giving better results. Explanation for inconsistent response to AGPs is not easy, but in many instances even simple practices like dosage, duration and rotation were not scientifically planned. In the present field study, when feed is further medicated (AGP+B) for a short period (one week from day old) with antibiotic, on top of AGPs inclusion, there is continuing increasing response, confirming the heavy microbial challenge confronted by the birds. Response to better quality feed with higher nutritional density (AGP+HS), resulted only marginal improvement. Positive response was seen to toxin binder (AGP+My) in addition to AGP but not so far as medicated feed was concerned, suggesting the biggest constraint for performance as the microbial challenge. Therefore, removing AGPs without properly planned programme will have far reaching consequences in these environments (Fig. 1).

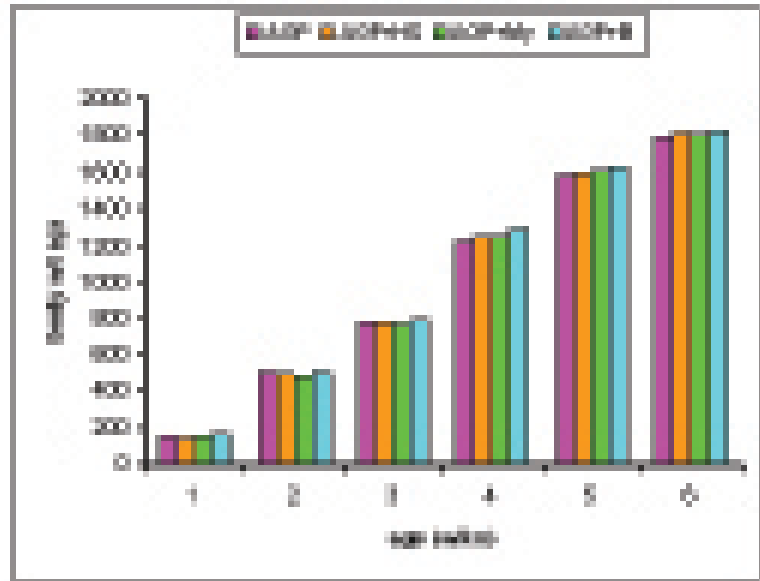
Alternatives to Antibiotic Growth Promoters

The general trend in many countries is to reduce or minimize AGPs use. However, these programmes have to be implemented very carefully in a planned manner to avoid any drastic reduction in production efficiency. Some lessons could be learnt from EU countries like Sweden or

Denmark which pioneered the AGPs ban. Sweden banned AGPs use in 1986, and had to face many problems initially, but ten years time they were able to recover. The immediate response to AGPs ban was the severe outbreak of bacterial infections leading to increase in therapeutic use of antibiotics, but gradually with the improvements in managements, together with inclusion of alternative products, has helped to bring the production levels back.

Denmark implemented AGPs restrictions ten years later in 1995, and was fortunate to learn many lessons from Sweden. According to the results, the Danish poultry industry, which produces around 138 million broilers each year, remained productive and profitable without antibiotic growth promoters. Two measures of growth namely, FCR and average weight at 6 weeks suffered slightly after the ban. Poultry prices have increased by the equivalent of only one cent per pound since the ban. Decreasing stress by reducing crowding and improving cleanliness often helped to alleviate the need for antibiotic growth promoters (Fig. 2).

Many alternatives to AGPs, have been suggested and available, but none has so far proven 100% efficient. It should be noted that most of these alternatives were tested and proven effective in developed countries or under

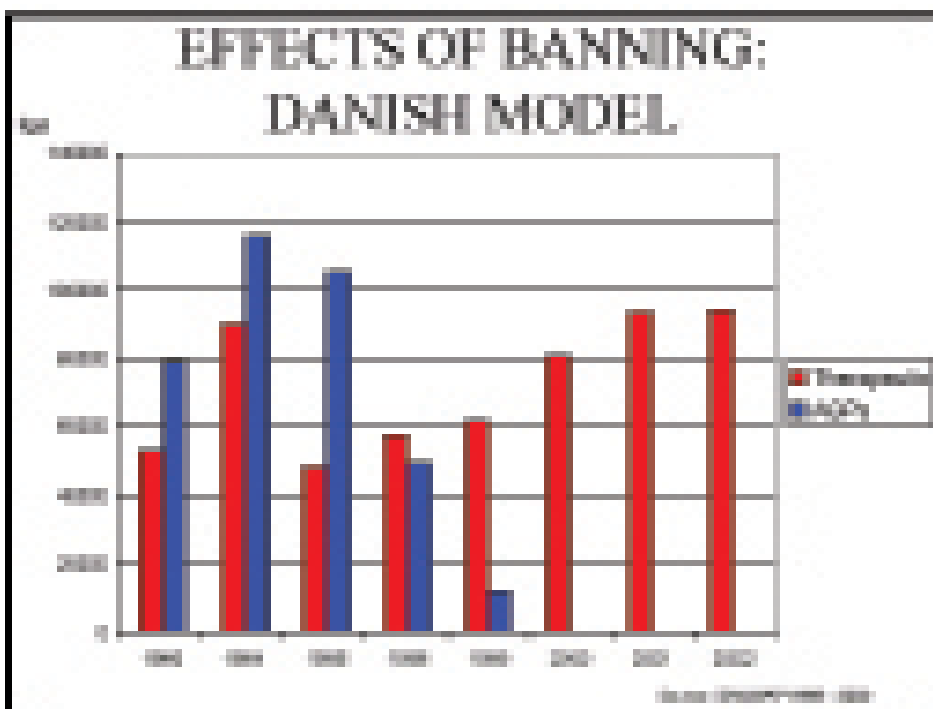


experimental conditions. Application of these findings directly to the actual farm situations prevailing in developing countries needs careful scrutiny. This highlights the need for at least adaptive research and feeding trials in developing countries before large scale implementation.

It is impossible to discuss alternatives and feeding approaches without some mention of related husbandry factors that are well known to influence the animal response to feeds. There are three basic strategies that can be used to cope with the loss of AGPs (Revington, 2002). They are:

1. **Pathogen reduction (Environmental factors)**
2. **Augmentation of the immune response (Bird factors)**
3. **Nutritional strategies and additives that either improve performance in their own right, or help to directly modify the gut microbial flora (Feed factors)**

All these three factors have to be tackled together in a more integrated approach to overcome the production losses due to AGPs restriction or ban.



Though these approaches are found to be effective, there is concern about methodologies available to check the efficacy of new additives.

1. Pathogen reduction (Environment Factors)

This has always been important but has taken on a new urgency. Poultry house sanitation, pest control, environment quality, including litter management and bio-security are important prerequisites to minimize the need for antimicrobial therapy in some countries. Poor chick quality and inexperience labour force has prevented the utilization of full benefit from these technologies.

Several new technologies to improve environment have been tried and one such new technology found promising but, not widely discussed is the application of Effective Microbial solutions (EM).

EM technology was first developed in the 1970s at the University of Ryukyus, Okinawa, Japan. The first solution contained over 80 species from 10 genera isolated from Okinawa and other environments of Japan. Later, the technology was refined to include only four important species namely; Lactic acid bacteria, Photosynthetic bacteria, Actinomyces and Yeast.

Different forms of EM preparations are available to be included in feed, water and apply in animal sheds.

2. Augmentation of the Immune Response (Bird Factors)

Increasing reliance on vaccination and development of improved vaccine delivery may provide opportunities to minimise feed-borne medications. Knowledge on controlling the negative effects on performance that the immune response confers is also gaining. It seems to be the systemic, acute phase response of the animal to disease challenge that confers significant nutrient requirement and therefore detracts from productive efficiency (Klasing, 1998). Conjugated linoleic acid is one compound that has been investigated for its apparent abilities to alleviate immune-associated anorexic response (Cook, 1998). Some dietary constituents like lectins, betaine have been shown to limit and some to increase fluid losses associated with enteric diseases which, in themselves, can lead to serious health and performance related problems (Goransson et al., 1993).

3. Nutritional Strategies and Additives (Feed Factors)

Currently approved antibiotic compounds have characteristics that help to explain their position as the additives of choice for growth promotion. In general,

they are extremely effective at remarkably low doses and they are relatively cheap, thus yielding significant return-on-investment. Although food product residues can be a concern, many AGPs have relatively low toxicity for higher animals. Notwithstanding the concerns about antibiotic resistance, there are few alternatives available today that can meet the benefits of the AGPs that they purport to replace.

Following is a brief description of some of the many nutritional and additive approaches that show promise.

The use of probiotics and prebiotics, organic and inorganic acids, enzymes and vegetable extracts containing aromatic oils, bioflavonoids and other compounds are considered as possible alternatives to the use of these antibiotics. However, it is concluded that these alternatives are more expensive and less efficient than antibiotics, and will necessitate changes in the management, animal nutrition, health and breeding. Therefore, more efficient alternatives need to be found.

The link between diet and the incidence of enteric disease in birds is well known. Diets based on wheat, barley or rye, for example, seem to confer greater susceptibility to necrotic enteritis (Riddell and Kong, 1992). The provision of substrate to the lower gastro-intestinal tract increases the risk of bacterial overgrowth. Thus, any approach that improves digestibility is beneficial to the bird.

Improvement of digestibility of feed can be brought about by many ways, such as inclusion of high quality ingredients, feed processing, enzyme etc. The enzyme technology is widely used today and the benefits of enzyme use are brought about through an increase in the rate of diet digestibility.

Low digestible materials have shown better response to enzyme treatment. The result of such improvement in diet digestibility is a significant change in the substrate quality and quantity available to the intestinal flora. Therefore, the performance response is thought to relate to cumulative effect of both, including changes in the micro flora population and the direct nutrient digestibility. The response to enzymes is likely to be more pronounced in the absence of growth promoters than in their presence, although absolute performance is optimized in the presence of both products. There are commercial enzyme preparations specific to target certain ingredient mixtures and also cocktails containing mixture of enzymes for general purpose use.

Live microbial additives mainly in the form of Probiotics, are also a popular alternative. These organisms influence the environment of the gut and favour the establishment of beneficial species, thus reducing the

population of challenge pathogens.

However, it should be noted that response to probiotics is always not consistent. The effects may be variable between preparations as well as with several other environmental and management conditions (Gohin and Sapkota, 1998; Priyankarage, 2005). Birds responded better during young ages and the performance improvements were comparable with the birds fed on the diets containing antibiotic growth promoter (Priyankarage et al., 2003).

Summary

Antibiotic growth promoters (AGPs), play an important roll in modern poultry production. However, there is a genuine need to find out alternatives to AGPs, due to increasing demand and pressure from consumer, producer and public at large. Banning or restriction of AGPs has to be done in a properly planned programme to minimize loss to the industry.

Feed additives show promise, but none have proved 100% efficiently. Although, there are alternatives, it is difficult to separate effective from non-effective. Adaptive research or feeding trials are recommended before commencing large scale use of any alternatives. Cost of these alternatives is also an important factor to consider.

Management factors such as genetics, vaccination, and environment management issues are important as alternative to AGPs.

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Role of Women in Livestock Sector of Pakistan

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Pakistan's economy and women's participation plays an important role in the agriculture sector. Livestock is a very important component of agriculture with women playing a pivotal role. Women constitute one half of the population in our rural areas. Women involvement in livestock management is extensive both in terms of labour input and decisions in farm management. According to one survey more than 66 percent of Pakistani women in the labour force, earn their living from the rural economy. The heavy workload of women in the livestock sector is increasing as women become more responsible for livestock production in addition to their household work. Unfortunately, this work is not recognized. Patriarchal social structure determines that men control women labour. Without a legal share in ownership of the means of production, women are excluded from decision-making regarding the allocation of material and economic resources. With reduction in land holding, due to traditions of inheritance, more than 50% of the farming

population have less than 4 acres of land. This has resulted in displacement of small farmers and tenants. Some of these farmers have switched over to livestock rearing for a better income.

Rural women participate both in crop and livestock farming and off-farm activities. The increasing migration of men of productive age to the cities has left women responsible for much of the labour input necessary to meet subsistence needs.

A complex set of conditions interact to exclude most women from the benefits accruing from rural economics. Even in rare cases where they till and cultivate lands as tenants, women are not counted as agricultural workers. Women spend a great amount of time looking after livestock. Most of the work is related to rearing and protecting animals, finding and carrying fodder and water, milking, collecting

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eggs, and ensuring the health of animals and poultry. Mechanized farming with tractors, harvesters and other implements has played a role in the life of men farmers but as far as the work performed by women is concerned, their workload has increased as the men prefer to be associated only with the work performed by the machines.

The contribution of women in rural economy could be divided into 4 sub-sectors:

1. crop production
2. livestock production
3. cottage industry
4. household activity such as transporting water, fuel, fodder to and from home, preparation of food and preservation etc.

The extent of their participation is not physically visible but they are actively associated with agriculture related activities and the socio economic conditions of the rural communities (Table 1).

Programmes have to be developed to address the issues of the productivity enhancement in these areas and to introduce new technologies for income generation and its resultant role in poverty alleviation. The methodological framework to be developed should be based on the presumption that the women farmers require information, advice, training and financial assistance. The subject matter of which must come from the women themselves rather than from governmental agencies.

A second approach is that the women should be made aware about the integrated farming system and its role in poverty alleviation.

Women Empowerment Project

Bunyard, a NGO of Pakistan has launched a programme for women farmers known as "**Farmer Wives**", which is a part of its women uplift programme. It was started with financial assistance from UNESCO.

Objectives of Project

1. To empower women by raising their income, earning capacity, self-employment and skill development.
2. To create leadership among rural women by linking them with training, access to information, micro credit agencies and line departments of the government.

3. To initiate the process where by there is women participation in decision-making, exposure to ideas and participation in civil society, which may lead to greater respect and status in the community.

The activities include;

- a. Media sensitization
- b. Formation of women groups
- c. Designing of curriculum and audio/visual material for women farmers
- d. Literacy Programme
- e. Training
- f. Practical demonstrations
- g. Micro-financing to the women groups
- h. Linkages for marketing

These activities take place mostly at community level as a result of regular meeting between Bunyard's mobilisers and the women communities of the rural area.

Additionally efforts are made to organize;

- Visits of women from one community to another
- Demonstrations
- Pilot initiatives in a given community followed by visits from other communities.
- Orientation programmes by resource persons
- Introduction to development agencies and NGOs

These trainings are imparted at the village level i.e. both in the individual rural community and by taking selected individuals from a number of communities to a special training site for some advance training.

Radio is the most powerful source of information, as most of the villages do not have access to television due to lack of electricity in their areas. There are more than 24 Radio Stations around the country. All the radio stations have allocated 1/3rd of their total airtime to regional language programmes, designed especially for rural communities. In these programmes, people are made aware about the latest developments, problems and their solutions in agro-livestock industry and other income generating activities. However, all these programmes are designed keeping in view the male population of the rural area. It is very important that the programmes are designed and produced to benefit both women and men.

Table 1. Indicators For Pakistan

DEVELOPMENT INDICATORS			
Population (million)	1.2	2001	WFP
School-age Population (million)	45	2000	Economic Survey 2001-02
People Below Poverty Line (%)	40	2000	Human Development Report 2001
Influe Mortality Rate (per 1000)	85	2000	Human Development Report 2001
ECONOMIC INDICATORS			
Average Growth Rate of	2.1	2000	Economic Survey 2001-02
GDP Per Capita (us\$)	1480	2001	Economic Survey 2001-02
EDUCATION INDICATORS			
Primary Completion Rate			
Overall Literacy Rate	41.0	1999	Business Survey 2000-01
Male Literacy Rate (%)	68.0	1999	Business Survey 2000-01
Literacy Rate Female (%)	12.0	1999	Economic Survey 2001-02
Urban/Rural Literacy Rate (%)	67/11.0	1999	Economic Survey 2001-02
Enrolment Growth	10	1999	Business Survey 2000-01
Upper Secondary Rates (% of School-age Population)			
Primary Total	44	1997	Business Survey 2000-01
Primary Female	30	1997	Economic Survey 2000-01
Secondary Total	20	1997	Economic Survey 2000-01
Enrolment Growth Rates			
Overall	2-11	1999	Business Survey 2000-01
Enrolment Rates (No. per year)			
Primary (by grade level, if available)	40	1998-99	Business Survey 2000-01
Primary Female	44	1998-99	Business Survey 2000-01
QUALITY INDICATOR (any data relating to the contents of learning materials)			
Education Expenditure			
Public Expenditure as % of GDP	1.7	2000	Economic Survey 2001-02
Share of total Recurrent Budget			
Population Growth (1991-2001)	2.1	2001	Statistical Profile 2002
Population Growth (per cent)	17.7	1999	WFP Database 2000
Male/Female Ratio	11.9/12.1	2001-01	Business Survey of Pakistan
Crude Death Rate (per 1000 population)	10.2	1999	Pakistan Demographic Survey
Crude Death Rate	8.7	1999	Pakistan Demographic Survey
Total Fertility Rate	4.8	2000-01	Pakistan Reproductive Health & Family Planning Survey 2001-01
Maternal Mortality Rate	140	1997	Human Dev. in GDP Data Report
Life Expectancy	49	2000	Human Development Report 2001

Recommendation

It is recommended that

- A baseline survey about the participation of women in work and their need assessment be carried out
- Community-specific integrated approach which

has been found effective in empowering women to identify and assess their needs, should be adapted

- Functional literacy is the solution for quick economic growth and women upliftment rather than simple literacy programmes and should be initiated

- Integrated, holistic approach to women's development is needed
- There is a need for upgradation of skills from the traditional to more remunerative ones.
- Need to include training in marketing to eliminate the role of middle man
- It is recommended to foster and support local institution and grass root organization through capacity building
- Need to have more extensive public-private partnership for women upliftment.

Researchers solve cell receptor mystery for killer animal viruses

An international team, including researchers from CSIRO, have achieved a major breakthrough in the bid to control two killer animal viruses.

The collaborative team, led by Dr Christopher Broder at the Uniformed Services University of the Health Sciences in Bethesda Maryland, have identified a cell receptor for both Hendra virus and Nipah virus.

The research team, headed in Australia by CSIRO's Dr Bryan Eaton demonstrated that a cell surface protein ephrin-B2 is a functional receptor for both viruses.

According to Dr Eaton, Hendra and Nipah are two newly discovered paramyxoviruses which pose a serious threat to human health.

"Paramyxoviruses normally have a narrow host range but Hendra and Nipah have an unusually wide host range and cause systemic infections and infections in neural cells that mean its often fatal in humans."

"At the moment there is no vaccine for these two viruses and we are trying to develop therapeutic agents similar to anti influenza drugs. HIV protein goes through a similar fusion process to Hendra and Nipah and we are looking at peptides we know work *in vitro* and seeing if they work in animals."

Dr Eaton said authorities had no idea how close Nipah virus is to Australia but given about 50% of Australia's fruit bat population test positive to Hendra virus antibodies and that fruit bats off Cape Yorke make regular trips over to Papua New Guinea, there was potential for some of these bats to contract Nipah.

Hendra virus killed two people in Queensland in 1994/95 and re-emerged in the state at the end of 2004. Nipah virus killed more than 100 people in Malaysia in 1999 and re-emerged again in 2001 and 2004 in Bangladesh killing up to 75 per cent of people infected.

Dr Eaton says ephrin-B2 is highly conserved in animals, so it is not surprising that the new viruses can infect a wide range of hosts.

"As long as a cell receptor is present, both viruses can enter the cells of humans and animals and replicate within, causing disease which is often fatal."

"Now that we have identified the cell receptor, we have a target for activity, hopefully blocking the viruses from infecting cells," Dr Eaton says. The research team identified the cell receptor by analysing a human cell line that was resistant to virus infection against two susceptible cell lines. They identified genes that coded for known and predicted cell surface proteins that were missing from the resistant cell line. The genes were introduced into cells which were then exposed to live virus at CSIRO Livestock Industries' Australian Animal Health Laboratory (AAHL).

~ Australian Vet J., Vol.83, No.8

Abstracts

Correlation between gastro-intestinal lesions and upper respiratory disease in 73 brachycephalic dogs

Gastro-intestinal lesions were observed clinically, endoscopically and histologically in many brachycephalic dogs with upper respiratory problems. Endoscopic anomalies were observed in some dogs without clinical signs and there were histological signs of inflammation that could not be detected endoscopically. There was a relationship between the severity of the respiratory and digestive signs which was significant in French bulldogs, males and heavy dogs. The relationship suggests that surgical treatment of the respiratory disease might ameliorate the digestive signs or medical treatment of the gastro-intestinal signs might improve the outcome for brachycephalic dogs treated surgically.

PONCET, C.M., DUPRE, G.P., FREICHE, V.G., ESTRADA, M.M., POUBANNE, Y.A. AND BOUVY, B.M. (2005). Prevalence of gastro-intestinal tract lesions in 73 brachycephalic dogs with upper respiratory syndrome. *Journal of Small Animal Practice*, **46**: 273-279.

Advances in the molecular understanding of retinal diseases in dogs

Molecular studies have identified the genetic defect responsible for some forms of progressive retinal atrophy in dogs, and the chromosomal location of other forms, all common causes of blindness in purebred dogs and the equivalent of retinitis pigmentosa in human beings. The gene mutation that causes a severe retinal dystrophy in the briard, which is the equivalent of Leber congenital amaurosis in human beings, has also been identified. The eradication of some retinal dystrophies has been facilitated by the development of DNA-based diagnostic tests based on these advances. Gene therapy has recently been used to restore the sight of dogs with a retinal dystrophy due to a mutation in the RPE65 gene. These studies should also help to develop treatments for similar conditions in people.

PETERSEN-JONES, S. (2005). Advances in the molecular understanding of canine retinal diseases. *Journal of Small Animal Practice*, **46**: 371-380.

Effect of gastro-intestinal nematodes on the weight gain of grazing beef cattle

In 11 trials conducted over three years at nine sites in South Dakota, USA, approximately 10 per cent of the grazing yearling cattle were weighed and treated with a bolus of sustained-release ivermectin before turnout, and a similar number were weighed and left untreated. In total, 800 cattle were used and the two groups grazed together. At the end of the 143-day grazing period the cattle were reweighed. The treated cattle had gained, on average, 6.6 kg more than the untreated cattle, and they had significantly lower faecal egg counts.

MERTZ, K.J., HILDRETH, M.B. AND EPPERSON, W.B. (2005). Assessment of the effect of gastro-intestinal nematode infestation on weight gain in grazing beef cattle. *Journal of American Veterinary Medical Association*, **226**: 779-783.

Home-monitoring of blood glucose in cats with diabetes mellitus

Fifteen owners of cats with diabetes were provided with the equipment to take blood samples and monitor their pets' blood glucose regularly for four months, and the results were compared with measurements made at the clinic. Twelve of the owners generated blood glucose curves successfully. The principal problem was restraining the cat and developing negative pressure with the lancing device. The measurements made at the clinic tended to be lower than those made at home, and in 38 per cent of cases the differences were large enough to have made a significant difference to the treatment the cat would have received. However, there was no relationship between a Cat's tolerance of the procedure and the measurements made at home, and it was assumed that the lower concentrations at the clinic were due to a lack of food. The method makes it possible to obtain glucose curves frequently, of particular importance in cats which are difficult to regulate.

CASELLA, M., HASSIG, M. AND REUSCH, C.E. (2005). Home-monitoring of blood glucose in cats with diabetes mellitus: evaluation over a 4-month period. *Journal of Feline Medicine and Surgery*, **7**: 163-171.

Asia

Sri Lanka

Commonwealth Veterinary Association/Sri Lankan Veterinary Association programme for a 'Visiting Small Animal Veterinarian in Residence' at the Veterinary Science Faculty, University of Peradeniya, Sri Lanka, 1-11 August, 2005 - A Report

In September this year, at the invitation of Prof Bill Pryor, Past President of CVA, I visited Sri Lanka as a guest lecturer in small animal surgery. My visit was part of a joint Commonwealth Veterinary Association clinical training initiative hosted by the Sri Lanka Veterinary Association. As our contribution to Tsunami relief, my partner, Brian O'Donohoe and the Bundoora Veterinary Hospital assisted by donating my time free of charge

The Veterinary School is based in Kandy, in the centre of Sri Lanka. The University has a large campus just outside the city. The airport is about 3 hours drive south of Kandy and I arrived at the inhospitable hour of 1 am, after a long 16 hour flight from Melbourne. I was met at the airport by one of the staff and driven to Kandy where we arrived at 3.30 am. I thankfully checked in to the hotel and went straight to bed.

After a brief but welcome sleep, I was collected at 8 am and driven to the Vet School where I met the Dean, Professor H. Abeygunawardena, after which I attended an opening ceremony for the programme presided over

by the President of the Sri Lanka Veterinary Association, Professor Sivakanesan. The Past President of SLVA and Regional Representative CVA Asian Region, Dr Swarna Herath initiated the training programme and it has been continued under the current President, Professor R. Sivakanesan. Dr Sivakanesan is Head of the Biochemistry Department at the Faculty of Medicine, University of Peradeniya and acting Dean of the Medical Faculty at the University of Peradeniya.

After the opening ceremony, I commenced a series of lectures on soft tissue and orthopaedic small animal surgery and over the next 10 days delivered approximately 60 hours of lectures to the final year students. In the middle of this lecture series, I also gave a two day seminar for veterinary practitioners and veterinary field officers. In the afternoons, the lectures were supplemented by practical demonstrations on clinical patients in the hospital, which were relayed by closed circuit television from the operating theatre to the lecture theatre on the next floor. The lectures covered a wide range of soft tissue and orthopaedic procedures and ranged from basic surgery to advanced procedures. The idea was



Dr Roger Clarke with participants

to try to improve basic underpinning knowledge of surgery while also exposing the students to the possibilities available with additional study and training. The training programme was coordinated with the able assistance of Dr DD Niranjala de Silva, Senior Lecturer in Veterinary Surgery and Head of the Department.

I found the whole experience very rewarding. The staff and students were all very kind and helpful. Each morning and lunchtime, I was presented with a cup of lemon tea prepared by the students. I found the tea of the Sri Lankan highlands was a good way of rehydrating during the very hot and steamy weather.

After the lectures were over, I took some time off after the sessions to visit the "cultural triangle" a section of Sri Lanka quite close to Kandy. The jungle is full of interesting archeological ruins of ancient cities and temples and the scenery is very spectacular.

I later visited the high tea country around Nuwara Eliya and saw the spectacular views at the "End of the world" where the mountain falls in a sheer precipice 900 feet to the plains below. On a clear day you can see the sea from the heart of Sri Lanka. The highest mountain, Pidurutalagala, reaches to 2,525 meters in height and leopards can still be seen in these jungles, if you are lucky.

There are over 3,000 wild elephants in the jungles of Sri Lanka and some of these end up at the Pinnawela elephant orphanage. The Pinnawela Elephant Orphanage, established in 1975, commenced with seven orphans; today, it houses over 50 elephants. Originally the orphanage was a refuge and tourist attraction, but now it has a full veterinary staff and has a scientifically established breeding programme for conservation. In 1984, the first baby elephant of Pinnawela was born and now there are many youngsters in the herd..

Dr Herath and De Silva took me there for a day and I was privileged to visit the veterinary section and get an inside look at the way they care for these beautiful creatures. For example, one old tusker is blind, having been shot by poachers in the face, irreparably damaging his eyes. He is led to the river each day by his mahout and another female elephant and now seems very content; without the help of the orphanage he would be dead from starvation.

Sri Lankan vets are very smart people, but they lack funding and resources to reach their full potential. I can strongly commend this type of training programme - it is rewarding to both the giver and recipient. I would like to encourage individual members of the CVA to give their time and also to donate materials, instruments and books to assist the University to train students.

If this programme is not repeated, it will not have the lasting impact it deserves. I recommend some system be established to ensure that the training goes on. I want to thank all involved for giving me this great opportunity.

~ Roger Clarke
Specialist Small Animal Surgeon
Australia

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Livestock for Life aims to strengthen links between livestock keepers, practitioners, researchers, scientists, policy makers and other stakeholders working in the field of international animal health.

For more information on how to apply for funding, and who is eligible, visit www.wellcome.ac.uk/livestock

Deadline for receipt of preliminary applications: **14 February 2006**.

Pakistan

14th Commonwealth Veterinary Association Asian Regional Conference

The 14th Commonwealth Veterinary Association Asian Regional Conference was held at Lahore, Pakistan from 21-23 September 2005. The conference was inaugurated by Dr. Muhammad Amjad, Chairman Pakistan Veterinary Medical Council on 21st September. Dr. Muhammad Aslam, Conference Chairman, welcomed all the guests. A message from Dr. Robin Yarrow, President CVA was read by Dr. Abdul Karim while Dr. Swarna Herath, CVA Regional Representative (Asia) CVA threw light on aims and objectives of the CVA.

Dr. Manzoor Ahmad, Vice Chancellor University of Veterinary and Animal Sciences (UVAS), in his key note address dwelt on, "Sustainable Livestock and Poultry Production in South Asian Region, Challenges of Future" and mentioned the future research and development priorities for the region.

In his inaugural address, Dr. Amjad highlighted the activities and policies of the Veterinary Council and assured its full support. The inauguration was followed by the inauguration of the exhibition jointly by Dr. Amjad and Dr. Aslam.

The conference was attended by 387 delegates inclusive of 20 foreign guests, 7 from India, 3 from Sri Lanka, 3 from Singapore, 2 from Bangladesh, 2 from USA, each one from France, Holland and Malaysia. Due to the visa policy of Government of Pakistan, NOC was not issued on time to the Secretary of CVA Dr S. Abdul Rahman and other speakers from India and as such they could not participate and only 7 delegates from Palampur University were able to cross the border by road.

Scientific Sessions

There were 4 scientific sessions, on the first day namely

- **Current Strategies in Poultry Health Management**
- **Management For Improved Poultry Productivity**
- **Poultry Nutrition**



- **Poultry Feed Mill Engineering**

The scientific programme was followed by a dinner and cultural programme.

On the second day of the conference 4 more technical sessions were held as follows.

- **Livestock Health**
- **Livestock Production**
- **Veterinary Education and Role of Women in Livestock Production**
- **Recent Trends in Small Animal Medicine**

On the second day of the conference, the final year students of the college were invited to attend the sessions which was a unique experience for the students.

The session on "**Veterinary Education and Role of Women in Livestock Production**" was chaired by Ms. Shaheen Attiq ur Rehman, who was also a key note speaker of the session. Dr. HMSP Herath, Regional Representative, CVA Asian Region co-chaired the session.

Dr. Nitish Debnath, Principal, Chittagong Government Veterinary College, Bangladesh also delivered a paper on

Veterinary Education in Bangladesh during the session.

The concluding session was presided over by Mr. Babar Yaqub, Secretary Livestock and Dairy Development, Government of Punjab. Raza Khursend, Chairman PPA was the guest of honour at this occasion. This session was anchored by Dr. Khurum Shafi. Recommendations were read by Dr. Bashir Bhatti, chairman recommendation committee. These recommendations were prepared by Dr. Bashir Bhatti (Poultry) and Dr. Ghulam Habib (Livestock), co-chairman of the committee, in consultation with the chairs of all the sessions.

Mr. Babar Yaqub in his discourse during the session, promised to consider the recommendations of the conference and include them in the annual plans of the ministry.

The scientific programme had 32 speakers presenting their papers during eight technical sessions.

Last day of the conference was a visit to the University of Veterinary and Animal Sciences, Lahore.

~ AA Ramzee
CVA Councillor, Pakistan

India

National Workshop on Concepts in Animal Welfare

The Commonwealth Veterinary Association (CVA), World Society for the Protection of Animals (WSPA) and Karnataka Veterinary, Animal and Fisheries Sciences University (KVAFSU) jointly organised a "National Workshop on Concepts in Animal Welfare" from November 15-17, 2005 at Bangalore, India.

Forty participants from 34 veterinary colleges and allied institutions of India and one from Bangladesh participated in the workshop. The workshop was inaugurated by Dr. A.L. Chaudhury, President, Veterinary Council of India, Dr. R. Balasubramaniam, Secretary, Animal Welfare Board of India was the Chief Guest and Dr. R.N. Sreenivas Gowda, Vice Chancellor, KVAFSU presided over the function.

Mr. John Callaghan, Workshop Director and Development Director, WSPA, Ms. Jasmijn de Boo, Education and Training Coordinator, WSPA and Dr. S. Abdul Rahman, Secretary, CVA were the resource persons who conducted the workshop.

Tsunami Appeal

Further to the contributions to victims of the tsunami in India and Sri Lanka reported in the last JCVA, the CVA acknowledges with thanks the following additional contributions to its appeal:

Dr Caroline Ash and the New Zealand Veterinary Association.

The fund now will be used in Sri Lanka to help tsunami victims in supplementing their livestock especially birds.

~ Secretary/Treasurer, CVA

Reading Can Reduce Risk of Alzheimer's Disease

Intellectual pursuits like reading, writing and leisurely activities like gardening and even praying can stave off the development of Alzheimer's disease, but watching TV increases the risk, a new research has found. The research by scientists at the Technion-Israel Institute of Technology along with Case Western Reserve University in Cleveland found that reading and writing delays Alzheimer's disease. The incurable dementia, leading to Alzheimer's, was delayed or prevented among those who spent a lot of time reading, writing and even prayer, it said. However, TV watching which is "not intellectually demanding", had the opposite effect and could even encourage the development of Alzheimer's.

~ Times of India, Nov. 15, 2005

Bangladesh

CVA Study Fund Reports

Training in Gynaecology and Obstetrics with special reference to Embryo Transfer Technology

Azizunnesa

*Lecturer, Dept. of Medicine and Surgery
Chittagong Government Veterinary College, Chittagong
Bangladesh*

I was awarded the CVA Study Fund to undertake training in Gynaecology and Obstetrics with special reference to embryo transfer technology at Madras and Bangalore Veterinary Colleges, India.

The training programme was held in the Department of Clinics and Animal Reproduction Gynaecology and Obstetrics at the Veterinary Colleges of Chennai and Bangalore, India.



The objectives of the training were

1. To familiarise myself with all gynaecological and obstetrics procedures with on hand training in various clinical scenarios.
2. To know about embryo transfer technology and acquire its skills.
3. To utilize the acquired knowledge and skills to implement in Bangladesh.

At Madras Veterinary College, I worked in the Small Animal Inpatient and Outpatient Clinic and also visited other units especially the casualty and other departments. I also practised artificial insemination in large animal and rectal palpation for pregnancy diagnosis. An average of 15-16 AI were done everyday. I also had an exposure in the

detection of oestrus by Heat detector, mucous examination under microscope and by rectal palpation. I also detected pregnancy by rectal palpation as well as ultrasound method both in large and small animals. I also familiarised myself



with treatment of various reproductive diseases both at the college as well as in a private clinic and had an exposure to management practices of dogs and cats.

During my stay at the Department of Gynaecology, I learnt about frozen semen – its collection and preservation and embryo transfer.



Oestrus detection by Heat detector

At Bangalore Veterinary College, I worked exclusively on embryo transfer technology. I got extensive exposure on oocyte collection by aspiration and slicing methods, oocyte washing and pick up, counting under microscope and maturation of oocyte. I was also exposed in the use of different equipments in the IVF Lab.

I visited the allied institution involved in embryo transfer such as National Institute of Animal Nutrition and Production (NIANP). I also visited central frozen semen production and processing facility in a rural area.

The highlight of my visit was a rural health camp organised by the Veterinary College outside Bangalore in which I was able to diagnose and treat various gynaecological and obstetrical cases.

I would like to thank Commonwealth Veterinary Association for the award of CVA Study Fund and to Dr. N.C. Debnath, Principal, Chittagong Veterinary College



Pregnancy diagnosis by rectal palpation

for permitting me to undertake the visit. I am indebted to all the staff of the Veterinary Colleges of Bangalore and Chennai for their help and guidance during my visit.

Training in Advanced Poultry Nutrition

Md. Emran Hossain

*Lecturer, Dept. of Animal Science and Nutrition
Chittagong Government Veterinary College, Chittagong
Bangladesh*

The training programme was held between April and May 2005, in the Poultry Science disciplines of Madras and Bangalore Veterinary Colleges, India. This study was undertaken in relation to advanced poultry nutrition with specific emphasis on micronutrient and mycotoxin analysis and quantification from poultry feed.

The specific objectives of the study were

1. Analysis of macro and micro mineral in feed
2. Determination of critical amino acids in feed
3. Quantification of mycotoxins in feed
4. Estimation of crude fibre in feed
5. Identification of enzyme activities in feed

In addition, the estimation procedure of moisture, fat, protein, amino acid, free fatty acid, acid detergent fibre (ADF), neutral detergent fibre (NDF), and Metabolizable energy (ME) by Near Infra Red Spectroscopy (NIRS) were also studied at Central Poultry Development Organization, Hessarghatta, Bangalore. I also learnt the *in vitro* Dry matter Digestibility, Organic matter Digestibility, Protein Degradability, Metabolizable Energy estimation, Voluntary feed intake prediction and Rumen kinetics by *In Saco* Nylon/Dacron Bag

and *In Vitro* Hohenheim Menke's Gas Production technique at Department of Livestock Production, Veterinary College, Bangalore.

I would like to thank Dr. N.C. Debnath, Principal,



Chittagong Veterinary College for permitting me to undertake the visit. I am indebted to all the staff of the Veterinary Colleges of Bangalore and Chennai and to the Commonwealth Veterinary Association for the award of CVA Study Fund.

Australasia/Oceania

Australia

Timor-Leste Veterinarian Visits Veterinary Practice in Australia

Dr Feliciano Da Conceicao, a veterinarian from Timor-Leste, visited Australia during spring as the guest of the Commonwealth Veterinary Association (CVA) and the Australian Association of Cattle Veterinarians (AACV). The visit was made possible by the CVA study fund, and the generosity of the AACV and a number of veterinarians, after

English training prior to coming to Australia. During his time at Walwa "Felix" impressively improved his English vocabulary. Dr Hall stated "Felix's keenness, cheerfulness, professionalism and high work ethic will never be forgotten".

"Felix" also had short stays with Dr Chris Miller of



a request for East Timorese veterinarians to "see practice" in Australia.

Dr Da Conceicao spent five weeks in Australia during what is regarded as the busiest period of the year for cattle veterinarians in clinical practice in South Eastern Australia. He also visited the Barossa Valley and participated in the annual conference of the AACV.

During his stay Dr Da Conceicao, known locally as "Felix", first spent three weeks at the Walwa Veterinary Practice with Dr David Hall seeing predominantly large animal practice.

Dr Hall reported that "Felix" made excellent use of his time making notes and researching each case. An added challenge was that "Felix" had only one month of

Corryong Veterinary Services, Dr Mick Shiel of Norvic Abattoir - Wodonga, Dr Jeff Cave of DPI - Wodonga, and Dr Bernie Mason of Murray Bridge Vet Clinic. After the AACV meeting, "Felix" visited Millicent in South Australia to see more mixed practice with Dr Kevin McGrath.

The CVA is very grateful to David, Chris, Mick, Jeff, Bernie and Kevin and the AACV for their support in what hopefully could become a more regular event. Donations of surgical instruments, supplies and a veterinary textbook from Lyppard, and a free annual subscription to "The Veterinarian", are also gratefully acknowledged."

~ Jeff Cave
RR, Australasia/Oceania Region

The David Banks Award

The late Dr. David Banks, who died tragically in an aircraft crash in North Queensland on 7th May, 2005, was an outstanding and inspiring veterinarian and committed much of his career to working for the livestock sectors of the Pacific Islands region as well as for the CVA.

The CVA has decided to instigate an award in honour of his memory, The David Banks Award, to be presented to an indigenous Pacific Island veterinarian working in the Oceania Sub-region on a 2 year frequency, at every Australasia/Oceania Regional Meeting. The Award, which will recognise exemplary scholarship and contribution to both the veterinary profession and livestock sector, will be presented for the first time at the next such Regional Meeting, which is to be held in Apia, Samoa.

The principal criteria will be;

- exemplary professional veterinary service
- outstanding contribution to the development of the livestock sector of the Pacific Islands.

Nominations shall be made in writing by a member

of a national veterinary association to the Regional Representative of Australasia/Oceania Region, at least 3 months prior to each Regional Meeting and should provide full support details and justification."

David Banks Appeal

As reported in the last JCVA the CVA has invited contributions to honour the memory of David Banks, formerly Councillor from Australia and a great CVA contributor. CVA acknowledges with thanks contributions recently received from the following:

Papua New Guinea Veterinary Association, Australian Pork Limited, Drs Caroline Ash, Peter Beers, J Mortier, Pat Boland, Jeff Chubb, Bill McGee, Margaret Leggoe, WJ Pryor, Bernie Robinson, Warren Vant, Anna Domitrijak and Professor RSF Campbell of Australia; Dr Giam Choo Hoo (Singapore) and the Fiji Veterinary Association.

~ Treasurer, CVA

Funding of CVA Projects for the needy – An Appeal

Recently CVA has been the recipient of some personal private funding for its programmes additional to financial support sent for the David Banks Memorial Appeal and the Tsunami Appeal in India and Sri Lanka. CVA would like to invite readers of JCVA to consider supporting key CVA programmes. If you would like to do this please complete the following form and return to the Treasurer as indicated.

Readers can be assured that any funds donated will be used only for the purposes of the programme and not for administrative costs.

All donors will be sent an official receipt and an annual report on the manner in which their donations have been used.

Name & Address of Donor	Sum Forwarded
Programme Description (Please Tick)	
David Banks Appeal	
Veterinary Service Improvement Programme	
Small Farmer Livestock Development	
Disaster Funding (Tsunami, Hurricanes, etc)	
<p>Cheques should be made payable to the Commonwealth Veterinary Association, 309 Pryors Road, Scarborough, Victoria, Australia.</p> <p>Bank details for electronic transfers may be obtained by contacting the Treasurer at treasurer@cva.org.au</p>	

Book Released

Vets at War, A history of the AAVC 1909-1946 written by Dr Ian Parsonson, an Order of Australia recipient and former Assistant Chief of the CSIRO Animal Research Laboratories was launched at The Officers' Mess at the Royal Military College Duntroon in July 2005. The ceremony was officially opened by Lieutenant-General Peter Leahy, Chief of the Australian Army and a grandson of Bob Wardle (a Veterinary Captain in WWI).

Dr Parsonson, an AVA life member, excelled as a large



animal veterinarian before studying animal viruses. Having served as an RAAF navigator flying Lancaster Bombers from Britain in the Second World War.

During the four year book project Ian worked closely with historians at the Australian Defence Forces, the Australian War Memorial to help capture the veterinarians' authentic stories.

Published by Australian Army History Publications, the book introduces the roles of veterinarians in the Sudan War in 1887 and the Boer War in 1900 before focusing on the colourful history of the Australian Army Veterinary Corps (AAVC) who played a vital role in the mobile fighting tactics of many allied forces campaigns.

Many members of the AVA's Veterinary History SIG attended the book launch including Dr Bob Taylor and his son Graham, Dr Peter Mylrea (whose father was in the British Army Veterinary Corps), Dr Frank Doughty (representing the Henry family), Dr Dick Roe and AVA Veterinary Director Kevin Doyle.

~ Australian Vet J., Vol.83, No.8

Kesteven Medal Winner

Renowned for his inspiring overseas project work, **Dr Alan Baker** was recently presented one of the AVA's highest honours - the Kesteven Medal. Alan received the joint AVA & Australian College of Veterinary Scientists (ACVS) award at the ACVS annual dinner held on the Gold Coast Saturday 2 July, 2005.



Since 1972 Alan has contributed to many animal reproduction and management projects in developing countries including Fiji, Vanuatu, Indonesia, Papua New Guinea and Bangladesh.

~ Australian Vet J., Vol.83, No.8

World Wildlife Diseases Association Medal for Dr Jack Arundel

Dr Jack Arundel received the WDA Medal from Professor Ian Barke, Professor of Pathology and Wildlife Diseases University of Guelph, Canada, at the Central Branch VIC AVA Scientific Meeting in July at the Veterinary Research Institute in Parkville.



The Wildlife Diseases Association Medal was presented to Jack in recognition of his pioneering work in wildlife diseases in Australia, establishing the Wildlife Diseases Laboratory at the University of Melbourne, and for his work with the WDA Australasian Section.

~ Australian Vet J., Vol.83, No.12.

Fiji

1st Regional Meeting of Heads of the Veterinary and Animal Production Services

The first Regional Meeting of Pacific Heads of Veterinary and Animal Health Production Services (PHOVAPS) was held from 28 November - 2 December 2005 at the Mocambo Hotel, Nadi, Fiji, under the auspices of the regional intergovernmental organisation, Secretariat of the Pacific Community [SPC].



The Workshop was inaugurated by Dr. Robin Yarrow, President, Commonwealth Veterinary Association (CVA), who also presented the keynote address. [This address is reprinted elsewhere in this Journal] The Workshop was also addressed by Mr Aleki Sisifa, Director of the SPC Land Resources Division, in which Animal Health and Production team is located

The highlights of the five-day meeting included country reports from 20 Pacific Island Countries and Territories [PICTs] namely American Samoa, Commonwealth of the Northern Mariana Islands, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, Wallis & Futuna, as well as updates on several regional projects, including the Zoonosis, PARAVET, Animal Waste and Biosecurity projects.

Papers were also presented by Office International des Epizooties (OIE) on its membership benefits and reporting

system and a presentation was made on the CVA, which has a partnership agreement with the SPC. Other topics of interest were animal welfare, avian influenza and emergency response planning. The CVA representation at the meeting included Robin Yarrow, Bert Stevenson, WJ Pryor, S Abdul Rahman, Ilagi Puana, Baddley Anita, Siosifa Fifita, Kenneth Cokanasiga, Tiria N Rere, Tearimawa Natake, Mose Mautoatasi, Raana Asgar and Dudley Wate.

The meeting also deliberated on the major constraints to animal production in the region as well as on the need to strengthen regional cooperation and collaboration. This included consideration of issues such as production systems, genetics and nutrition, infrastructure, human resources and policy/legislation. Of special concern is the relatively low priority accorded to livestock development by most PICTs in the face of increasing consumption and imports of livestock products. The implications of the present Avian Influenza outbreak also received intense focus, given that the region is remarkably free of many of the serious diseases of animals.

The main outputs of the Workshop were to;

- institutionalise the PHOVAPS meeting to serve as the priority-setting mechanism for the Animal Health and Production activities of SPC and to convene this meeting every second year;
- establish an Advisory Group comprising representatives of the 3 different Pacific Island regions [Melanesia, Micronesia and Polynesia] as well as of the metropolitan country SPC members, to review and report on these activities and to make proposals to the PHOVAPS meeting on the future work programme and budget;
- facilitate a regional scoping study to identify strategic needs in such areas as HRD, veterinary diagnostic facilities [nationally and regionally], exotic disease monitoring and emergency response, genetic and nutritional improvement and food hygiene, for possible funding under the new Pacific Plan.

Speech by Dr Robin Yarrow at Opening of SPC PHOVAPS Meeting Nadi, Fiji, 28th November, 2005.

Good morning distinguished participants, ladies and gentlemen. First of all, may I extend a very warm Fiji welcome to all participants to this Heads of Veterinary and Animal Production Services meeting? I especially welcome those of you who have travelled from beyond Fiji, in particular those of you who may be visiting us for the first time!

I also wish to commend SPC for convening this meeting - there could hardly be a more opportune time for senior officers and other representatives of the livestock sectors and services of our vast island region to engage in person. In looking around at your faces this morning and at the participants list, I must say that we really do seem to have the length and breadth of our region well covered!

May I further express my own appreciation to our organizers, from the Animal Health and Production Service of the Land Resources Division of SPC, for according me the honour of being your chief guest today - I do so with considerable pride, on behalf not only of my own country, Fiji, but also on behalf of the CVA, the Mission of which is to promote the Veterinary profession and to advance animal health, productivity and welfare, across the Commonwealth. My senior CVA executive colleagues, who are in Fiji this week for our own meeting, are also most grateful for having been so warmly welcomed into this important meeting.

While the spectre of Avian Influenza currently looms high over us, there are many other issues of concern for our region in a livestock sense. These include the increasing risks of introduction of a range of other animal diseases at present not in our region, many of which can also be transmitted to humans, as well as the multiple challenges associated with increasing livestock production. As all PICTs have a common or shared need to be more vigilant in their monitoring and surveillance of exotic diseases and to be in a position to respond to confirmed introductions after early detection, it is simple good sense and logic that we all work closely together in this critical mission. This of course is one of the key *raison d'etres* for the SPC and this meeting

is a demonstration of the valid mandate which it has, being operationalised.

I am re-stating the obvious for most if not everyone here, but the enviable relative freedom from serious animal diseases which this region enjoys, is something we have to work even harder to protect and preserve, in the face of the increased risks and threats. Our world is a much smaller place, a 'global village' according to many and contact between people and their goods, both legally and illegally is unprecedented. To this we must add the risks of introduction of an animal disease by migratory birds and by other mechanisms such as insects, winds and

even bioterrorism.

Our respective livestock sectors are generally smallholder-based and in almost every case contribute significantly to GDP. It is estimated that over 60% of our collective almost 1 million rural households raise livestock. In some individual countries, for example in the Cook Islands, this figure exceeds 90%! Many different benefits accrue, the most important being income flows and food security. The cultural significance of livestock is very important, in particular in the case of pigs in virtually all PICTs. A major component of livestock trading and use is still through the informal market.

The region's cattle population is around 700,000, of which only 30,000 are dairy stock, largely located in Fiji. Fiji has some 250,000 head, Vanuatu 150,000, New Caledonia 130,000 and PNG 90,000. Some 80% of the region's 300,000 goats are located here in Fiji while the sheep numbers are still less than 30,000. It is worth noting that there is mounting interest across the region in the Fiji Fantastic sheep, a tropical meat breed based on the Barbados Black Belly, which was developed in the 1980s and 90s. Other herbivores include around 75,000 horses, feral deer in New Caledonia and PNG and feral buffalo in PNG.

It is estimated that there are over 3 million pigs in the region of which 2.5 million are in PNG. A further 17 million



poultry are also spread across the region. Bee development [Nuie is an exporter of organic honey] and aquaculture both offer considerable potential.

Companion animals are becoming increasingly significant. Apart from more traditional use for hunting and protection of property/security, more people keep animals as pets. For example, in some of Fiji's urban areas it is estimated that some 70% of households keep a dog or more!

The reference I have made to our globe gives me the opportunity to reflect somewhat on the so-called "bigger picture" of which we are all indelibly part. Of course as we take stock of our respective situations, there are both positives and negatives.



On the plus side, we have seen enormous advances in communication technology - some of these such as the internet have meant that even remote and isolated island as well as highland communities such as ours, can converse with each other and with 'centres' in real time in a very cost-effective manner. Voice and image transmission is still relatively expensive unless you are part of the USP Net system! While travel is also expensive on a per passenger km basis in our region, largely because of small numbers, it nevertheless can still enable us to all come together in this way. There are some exciting and even worrying advances being made in biotechnology and genetic engineering, some of which might bring benefits in the future in livestock production terms.

A quick scan of the negative list will show that this is a much longer one. This includes loss of biodiversity [an example is the alarming destruction of native forest world-wide, some 37,000 square km were lost in 2004] the progressive depletion of our finite natural resources, general environment pollution and land/water degradation as well as

global warming and sea level rise. To this must be added the more frequent and severe natural disasters and our rapidly burgeoning human population. The scourges of HIV/AIDS [5 deaths each minute] terrorism, drugs and rising levels of NC Diseases, round off a depressing scenario.

In examining the livestock sector at this global level, the dramatic increase in consumption of livestock products by developing countries appears set to continue. The consumption per capita of meat in these countries rose from 14 kg to 21 kg in the 10 year period between 1983 and 1993, i.e. by 50%. The largest increases have been in Asia and in China, per capita consumption actually doubled in this same period, albeit from a relatively low base. However, the average per capita consumption of meat and dairy products in developing countries is still around only half of that in the developed states.

At the same time, it is not always widely recognised that consumers in developing countries are now obtaining an increasing share of their calories from animal products, in addition to protein. However, concern exists that the increasing demand for grain for animal feed will force the price up. Another concern relates to the health implications of increased consumption of animal products, in particular of saturated fats. The fact that over 60% of all emerging animal diseases are zoonotic in nature is another area of worry, as is the increasing difficulty of disposal of animal waste from the intensive production systems.

On the more positive side, improved human nutrition from consumption of livestock products is a benefit as are income and employment generation for producers, some of whom are from disadvantaged rural situations. Additional spin-offs include foreign exchange savings [and potential export earnings] from import substitution, enhanced national food security and a reduced tendency for movement to urban areas.

May I now move from the global back to the regional level. Our vast Pacific Island Region comprises some of the smallest and most scattered states on this planet. A good number comprise only coral and sand as substrate and are barely 2 metres above sea level. Differences between the island countries can be large and there are also substantial diversities within each country, particularly in Melanesia. It is the larger Melanesian countries which have the greatest share of land-based natural resources when compared to Polynesia and Micronesia.

Economic growth over the last 25 or so years in our region has generally been disappointing and below expectation, with only a few exceptions, one of which is Samoa. Population has on average, increased, and in some

cases the rates are alarming. In most cases insufficient jobs are being created for the ever-expanding numbers of school-leavers, mainly in the larger volcanic countries. Combined with rising aspirations on the part of many young people, the situation is the cause for much concern, as each nation grapples with the many challenges of national development.

Against this somewhat gloomy backdrop, there is little doubt that regionalism is now perhaps more relevant in our vast part of the world than in most other regions. This is partly exemplified by the relatively high number of regional inter-governmental organisations which we have - although some feel that we have an excess.

Many of you will know that the SPC was established as the South Pacific Commission in 1947, just after World War II, by the then colonial powers. However, the College of the Federated States of Micronesia (FSM) claims to be the oldest regional organisation, because it started admitting regional students soon after it was established in 1888!

The Pacific Plan, which was approved by our leaders at the recent Pacific Islands Forum in PNG, represents a bold new initiative in enhanced regional cooperation and greater integration. The goal of the Pacific Plan is to stimulate economic growth, sustainable development,



good governance and security for Pacific countries through regionalism. This Plan is based on the concept of regionalism: that is, countries working together for their joint and individual benefit. It is not intended to replace any national programmes, only to support and complement them. A regional approach should only be taken if it adds value to national efforts.

A number of regional priorities have been identified in the Plan, one being a Regional Security Technical Cooperation Strategy in border security, including for bio-security. It is intended that a plan for bio-security now be developed. While there is no specific reference to animal disease, it is clear that this could justify a similar approach.

As most of you will be aware however, strategic planning at the regional level is a well-entrenched practice by our regional inter-governmental organisations, all of which produce such plans in close consultation with their stakeholders. In fact the Land Resources Division Strategic Plan for 2005 - 2008, was developed by way of a very thorough participatory process.

Turning again to livestock in our own region, the long history of pig and also poultry rearing is believed to go as far back as 4,000 years in PNG. As already stated, pigs occupy an important position in the culture of the majority of PICTs and poultry continue to be a key protein source in the rural smallholder situation, in spite of the expanding intensive poultry production systems. The pig and poultry densities of a number of our smaller states surprisingly rival those in some of the high density Asian countries! For example, Tuvalu and Kiribati have approximately 500 and 120 pigs per square km respectively, or 1.2 and 2.1 pigs per head of population! In these PICTs, most of these animals also live in very close proximity to humans, both for ease of management and security. This of course does present some special challenges for these states, in particular in terms of waste management and also possible zoonotic disease transmission to humans.

Grazing livestock are of course, a much more recent arrival and are only significant in the larger volcanic countries in the SW Pacific. While there is no strong ruminant rearing tradition, there is considerable potential to increase production through better use of available grazing areas and also by improving efficiency.

While Vanuatu and to a lesser extent, New Caledonia, Fiji and PNG export livestock products, self-sufficiency levels would on average, not exceed 20%. The fact that Vanuatu exports organic beef to one of the most demanding of markets, Japan, is not only a matter of special pride for our region but is also an example of what can be achieved in developing niche markets for quality products. There is considerable scope for greater infra-regional trade in Livestock products.

Per capita consumption of all livestock products is increasing and data indicates that imports into the region now exceed US\$ 200 million per year, mainly from Australia and New Zealand. In the case of beef for example, the

consumption level extends from under 2 kg per head in the Solomon Islands to 14 kg per head in Vanuatu. Sheep meat presents an interesting and challenging picture, with consumption being as high as 35 kg per head in some Polynesian states. That much of this is inferior quality, consisting mainly of fatty mutton flaps, is a major concern. Poultry meat consumption is increasing rapidly, much of this from broiler systems or imports and averages over 5 kg per capita per year across the region. While self-sufficiency in poultry meat and eggs is steadily increasing regionally, the major part of the formulated feed is still imported.

Population increases, urbanisation and expanding tourism numbers in several countries are serving to further increase imports of all livestock products and on the whole it appears that self-sufficiency levels are in decline. Unfortunately, livestock development does not attract the level of government support and resources considered necessary for this sector. As a result, the livestock production sector is not taking best advantage of the market opportunities that exist nor are the available resources, especially in terms of land, being fully utilised.

This worrying situation has been well-recognised, including by successive high level and also technical meetings under the SPC umbrella, such as that of the last Permanent Heads of Agriculture and Livestock Production Services [PHALPS] in 2001. The First Regional Conference of Ministers of Agriculture and Forestry Services, convened by SPC in September, 2004 in Suva, highlighted in its Communiqué the need to "strengthen the livestock sector [both small and large animals] in most countries." The Ministers made special reference to the value and benefit of the SPC PARAVET initiative, which is 'enabling the potential of livestock to be more fully realized in difficult rural areas.'

In endorsing the impressive new LRD Strategic Plan, the First Conference of Heads of Agriculture and Forestry Services [HOAFS], which was held immediately after the Ministerial Conference, then further considered the needs and direction of the animal health and production programme. The acute lack of veterinarians in the region [in fact the numbers are at their lowest level for over 30 years] was acknowledged as a "critical issue at a time when there is an increasing need for national capacity in animal health because of trade, emerging diseases and public health issues." It was further recognised by the Conference that as "traditional donors were unlikely to address this situation, a regional solution may present the way forward." It was proposed that the capacity of SPC in the field of animal health should be strengthened and that full support be given to the PARAVET project. These two activities were seen to be complementary and "would go hand in hand to develop an effective animal health service for the region."

The 11th CVA Workshop for Australasia/Oceania held in Lae, PNG late last year, one of the largest meetings of animal health and production personnel to be held in the region, endorsed and strongly supported the Resolution of the Ministers of Agriculture and Forestry and also stressed that greater focus should be given to animal health and livestock production in the region. The Workshop further suggested that, "given the increasing importance of agriculture [including animal production] in the region, that each country and territory should develop a ten-year vision and policy, and three to five-year strategic plans, for animal health and livestock production." I wish to acknowledge the excellent support which SPC provided toward this CVA Workshop in Lae.

Important challenges for the livestock sub-sector include ensuring that animals are reared in a healthy, efficient and sustainable manner, with due regard for the environment.



Among the key issues are the following;

- strengthening the genetic base and improving nutrition
- enhancing management, husbandry and animal welfare
- reducing losses from animal disease, paying special attention to zoonoses
- improving monitoring and surveillance for exotic diseases and developing contingency response plans
- enhancing services and support provided to farmers
- advancing food hygiene standards for livestock products, including for export
- addressing problems relating to livestock wastes
- ensuring that livestock farming is run as a business

Most of these issues are common ones to varying degrees across the region. Given the capacity constraints and funding shortages within the agricultural services in many countries, there would be merit in developing support for selected responses from regional organisations as well as from further a field where necessary, as far as this is possible.

The case for SPC to play an even greater role than at present is in my view, a compelling one, under the current circumstances. A few examples could include conducting disease surveys, advising on animal welfare 'best practice' for the region, developing templates for draft livestock legislation, capacity-building and studying the feasibility for improved diagnostic services.

Similarly, the case for Australia in particular, to further extend a 'helping hand' to the PICTs in a livestock sense, is also a strong one, recognizing that we are all part of their 'backyard.' For example, the Emerging and Resurging Zoonotic Diseases Regional Initiative 2005-2007 being funded by Australia, could be extended through SPC, to include our region.

Partnerships between our regional bodies such as SPC, USP and SPREP with like-minded donor countries and organisations, including FAO, OIE and the CVA, will also become increasingly important in developing better strategies for our region.

A 1999 study, jointly by FAO and the International Livestock Research Institute, titled "Livestock to 2020," referred to the events and challenges in this period up to 2020 as the "Livestock Revolution". Although produced well before the appearance of the Avian Influenza, this report projects a period of strong growth and development for the sector, particularly in developing countries. Let us all resolve to work towards ensuring that our PICT region livestock sub-sector is a vibrant part of this Livestock Revolution!

This week's meeting is a wonderful opportunity to review and discuss these issues and to consider possible national and regional strategic interventions. These could well include a major response under the framework of the Pacific Plan, based possibly on a regional scoping exercise.

I am very confident we will have a range of informative presentations, exchanges of experience and fruitful debate and that valuable conclusions and suggestions for follow-up will be agreed on in the process. Of course, some of this interaction takes place outside the meeting proper, over coffee or lunch or even on a morning walk! The networking and camaraderie



that also result, is another very real benefit from meetings of this nature.

My CVA colleagues and I do greatly look forward to the week's programme. In fact I will be staying the entire time!

I wish you all a most successful and enjoyable meeting!

May I now, without further ado, declare this very timely and important regional meeting of Heads of Veterinary and Animal Production Services open.

~ Robin Yarrow
President, CVA

New Zealand

Ross Blanks receives NZVA Outstanding Service Award

At the NZVA Board meeting in August, President Amanda Nutting made an NZVA Outstanding Service Award to **Ross Blanks** for services to urban animal management.

For many years, Ross was the architect, proponent and public voice on NZVA's views and policies on matters involving animals in the urban environment. These have included microchipping, dangerous dogs, cats in ecologically sensitive areas, dog socialisation and pet owner education.

~ VetScript, September 2005



Avian Influenza Outbreaks in Birds

A brief summary of events worldwide regarding the highly pathogenic avian influenza (HPAI H5N1) pandemic over the festive period:

Outbreaks in Birds

There have been new outbreaks in poultry from:

Vietnam – with 12 provinces mainly in the north reporting outbreaks of HPAI in domestic poultry

China – new outbreak in domestic poultry reported from Sichuan Province in the SW of the country

Ukraine – in domestic poultry in many provinces of the Crimean peninsula

Croatia – in domestic poultry and wild birds

Romania – in domestic poultry and wild birds

Russia – in domestic poultry and wild birds

Turkey – in the west of the country reported under control but fresh reports of dying birds in the remote eastern part of the country near the Armenian border (see human cases below)

Human Cases

China – new human cases being reported

Indonesia - new human cases being reported mainly from the Jakarta area

Turkey – first reports of human cases of H5 outside SE Asia in the remote eastern part of the country near the borders with Armenia and Iran with one fatality to date

Other Emerging Issues

Resistance to the antiviral drug Tamiflu® has been reported in a retrospective study of two isolates of H5N1 from human patients from Vietnam.

The role of migratory birds in the epidemiology of the current H5N1 pandemic is being played down by some experts. However it is becoming increasingly clear that much research is required to fully clarify the roles of the different species of wild birds in the epidemiology of HPAI.

It has been suggested that the use of poultry manure in integrated fish farming systems particularly in SE Asia may play a role in the spread of HPAI by infecting wild birds. However the importance of this possible route of infection requires further investigation.

~ Dr Steve Angus
SPC, Suva, Fiji

Canada/Caribbean

Canada

New President of CVMA

Dr Robert Ashburner was elected as the new CVMA President for the year 2005-06 at the Meeting of CVMA in Victoria BC, Canada on 12 July, 2005.



Dr Ashburner is from Vancouver, British Columbia and currently is the Director on the Board of the National Commission on Veterinary Economic Issues (NCVEI). He has a special interest in business management and the economic health of the veterinary profession.

Dr Ashburner graduated from the University of Calgary with a bachelor of science in Zoology in 1972 and after working for Banff and Jasper national parks, he completed his veterinary medical degree at the Western College Veterinary Medicine (WCVM) in Saskatoon, Saskatchewan. Moving to Vancouver after graduation, he purchased the West King Edward Animal Clinic where he works with a part-time associate and 4 other staff looking after companion animals.



Dr Ashburner is also involved with the British Columbia Veterinary Medical Association as representative to the WCVM Chair of the Conduct Review Committee and of the Economic Survey Committee.

New Veterinary School for Alberta

The new Vet School at Alberta will be the 5th Canadian veterinary school to be established in Canada at Calgary in 2006.

The programme will be delivered in 144 weeks, over three years compared with the usual four. Students will have already completed a science-based degree before entering the school.

The programme will be based on an innovative clinical presentation model curriculum. It will be paperless, based on a solid foundation of enquiry and research, and be delivered in partnership with the local veterinary community.

There will be 85 clinical presentation subjects (such as oedema, diarrhoea, polydipsia, polyuria). The clinical medicine surrounding each of these clinical presentations will be taught at the same time as anatomy, physiology, biochemistry and pharmacology.

The principles of comparative medicine are built into the programme. The approach has been used successfully in the University of Calgary's medical teaching programme for the last ten years, based on 125 clinical presentation models.

The course will be taught at the University of Calgary alongside the existing medical faculty.

Uganda

Uganda Veterinary Association World Veterinary Day

World Veterinary Day was organized by Uganda Veterinary Association (UVA) at Hotel Equatoria, Kampala on 10 November 2005.

The theme was **"Livestock Presents the Best Opportunity to Alleviate Poverty in Developing Countries"**.

Prof. Eli Katunguka-Rwakishaya, a member of UVA, Director of Makerere University Graduate School, former member of the Uganda Veterinary Board and former Dean of the Faculty of Veterinary Medicine Makerere University gave the Veterinary Day's keynote address. In his speech he elaborated on the significant contribution made by the livestock sector in the economy of developing countries hence its relevance to poverty reduction: food security (meat, milk, eggs); increasing demand for livestock products as economic conditions improve; trade (animals and animal products); social obligations (dowry, status and better living standards). To illustrate the impact of livestock production on rural households, he cited a research study done by Makerere Institute of Social Research (MISR) which found that rural households in Uganda that keep livestock are less prone to poverty than those that do not. He summarized it thus: "Livestock constitute a major activity and a resource for African households and economies therefore policies that address this aspect of the economy must be well thought through if Africa is to rid itself of chronic poverty".

Prof. Katunguka-Rwakishaya recommended the following as the way forward:

- Africa must invest in training professionals and must also put in place mechanisms to retain them.
- African governments must also put in place mechanisms to combat the spread of HIV/AIDS which has emerged as a major threat to economic and human resource development in Africa

He does not share the doubt in some quarters as to

whether veterinary services in Africa that have been weakened by constant wars and uncoordinated policy changes, can handle the epidemic on its doorsteps.

New Paradigms in Veterinary Training



Prof. John David Kabasa, Dean, Faculty of Veterinary Medicine, Makerere University observed that veterinary training and training programs in Africa must be sensitive to the fact that the veterinary profession (in Africa) is not an isolated island: the emerging issues of the 21st Century e.g. Gulf coast hurricanes, bioterrorism, clash of civilization, natural resources conflict, etc., are all multidisciplinary issues of the interconnected global community. Training programs must therefore be developed / reviewed conscious of the current and upcoming global trends. Training, service provision and research should also recognize the anthropogenic age in which we live, and also be aware of the fact that animal health and public health are very closely (in some cases, linearly) related.

Constraints to Disease Control in Uganda and their Consequences

The meeting noted that a high performance organization

/ system is characterized by unique attributes such as a clear vision shared by all stakeholders; clear objectives appreciated by all stakeholders; adequate plans to meet the objectives; commitment of sufficient resources to implement the plans; continuous improvement on performance and continuous and quick response to changing demands. It was also noted that the stakeholders in livestock development are quite varied and not all the stakeholders seem to share the vision. Some of the stakeholders have negative attitudes despite their prescribed roles / responsibilities and influence in operationalizing the system for optimal performance. It was further noted that the major stakeholders are not under the Ministry of Agriculture Animal Industries and Fisheries (MAAIF) control and the linkages (e.g. legal) with them are weak. The results of lack of effective control are, needless to say, poor performance. In the veterinary services department there are veterinary professionals and non-veterinary staff. The latter provide support services and do control the resources. It is common knowledge that adequate resource allocation is important to facilitate the work of the veterinarian but it is surprisingly the most 'ignored' point in the chain! This therefore affects the performance and subsequent impact of veterinary services. The UVA and MAAIF must be lead stakeholders in the broad team of partners to change the wrong attitudes, sell the vision and plans of the livestock sector to all stakeholders and garner for better resource allocation for effective performance of the sector. This way, the sector's contribution towards poverty reduction will be enhanced.

Research and its Role in Livestock Development

The major outcome of livestock development is increased production and productivity (through improved breeds, better management practices, improved livestock nutrition, improved disease diagnosis and control, improved quality of livestock and livestock products); better



extension services for efficient delivery of animal health services; enlightened farmers; availability and accessibility to markets for livestock and livestock products and enabling policies and regulatory services. Research makes a significant contribution in achieving these outcomes through generation and improvement of appropriate technologies, adaptation of existing technologies to 'new' environments, production of biologicals, development and validation of diagnostic tests.

Gender Roles in Livestock Development

The meeting reviewed two experiences from participatory programmes in livestock systems in the Eastern part of the country, one each from a research study (Teso Farming Systems) and a development project (FARM-Africa dairy goat project in Bugisu) to illustrate lessons drawn from working with the community.

The following were identified as the major general constraints to livestock production:

- *poor feeding of livestock* (lack of improved pastures, dry season, land shortage, thin labour force);
- *diseases and pests* (tick borne diseases and Foot and Mouth Disease were perceived most important);
- *inadequate knowledge in acaricide use*;
- *poor breeds of animals* (most have no knowledge in selection of animals) and
- *marketing of animal products* (low price, poor access to markets and market information).

The constraints affecting women specifically included increasing destruction of natural resources e.g. trees and shrubs through burning reduces women's capability to gather firewood and fodder; lack of land ownership rights (issues of inheritance); scarcity of water especially during the dry season; HIV/AIDS reduces farm productivity; low education level of women and therefore less access to technology and services.

Appropriate strategies recommended for dealing with issues of gender in livestock production were enumerated: Strategies that reduce women workload e.g. technologies for food processing . Chippers, solar driers, energy saving stoves; integration of agro-forestry to provide firewood and fodder for livestock; training in animal traction not only for cultivation but also for weeding and transport; strategies aimed at institutionalization and strengthening of women groups (easier and cheaper to train women in groups, training should be gender tailored, HIV/AIDS in livestock projects

should be considered - would it be easier to supply a dairy goat instead of a cow) and strategies for improving the availability of production factors such as water-catchment technologies, boreholes, valley tanks, etc.

It was concluded that:

- Women experience difficulty in adjusting to new roles in livestock production due to lack of knowledge and management skills in livestock production. Besides, livestock production adds to their workload.
- Gender-oriented training in livestock management and appropriate livestock / other technologies are recommended.
- It is believed that the FARM-Africa's dairy goat and animal healthcare project approach of promoting a replicable model of dairy goat technology and animal health delivery supported by innovative partnerships, and sustained by strong local institutions will go a long way in fighting poverty.

Privatization of Veterinary Services: the Kenya and Uganda Experience

The experiences in the two countries are similar in many respects. In both countries, the ultimate goal of the establishment of the projects is to enhance access to quality animal health services to the animal-keeping community. The ultimate impact is in improvement of household income and livelihoods.

The common challenges faced by the two schemes are: Unfair competition from government employed veterinarians and quacks; weak legislation and lack of effective inspectorate; sustainability of the scheme. In addition, there is perceived poor financial returns from private veterinary practice especially in the pastoral and rural areas.

The major differences are in the management structure. Furthermore, in Uganda, unlike in Kenya, the scheme is currently limited to supporting clinical service delivery.

The major benefits of the scheme are: creation of employment; improved business skills of the Private Animal Health Services providers; continuing professional veterinary education; poverty reduction to the farming community; enhanced earnings and cash economy in the rural areas; easier access to technical information necessary for farmers to improve on the productivity from their livestock and raising of awareness to the farmers on the availability of professional services; there is some change in attitude of animal owners evidenced by less resistance to

payment for private veterinary services; the distribution and sale of veterinary pharmaceuticals has greatly improved and farmers have a variety of efficient and competitive veterinary services hence an improved animal health care system.

The future of the schemes:

- Kenya: As part of its 5-year strategic plan, Kenya Veterinary Association Privatization Scheme (KVAPS) will transform into a microfinance organization.
- Uganda: The review process is ongoing and one of the issues to be considered is broadening the nature of activities supported by the loan scheme beyond clinical service delivery.

The Relevance of Veterinary Practice on Household Poverty Eradication in Uganda

While it was noted that it is early, and probably inappropriate to use the phrase 'poverty eradication' in any country, it is important to note that it is the heartfelt hope of Ugandans. This desire is 'fuelled' by the dislike of the alarming gravity / magnitude of household poverty in Uganda (38% of 27.2 million people are below the poverty line); vulnerability to poverty remains high, even those who are well to do can again slide into poverty at some point in time; the majority of Ugandans depend on crop production which does not guarantee stable incomes.

The Livestock sector is envisaged as one of those areas that should play a pivotal role in poverty eradication and in development of the national economy. The inadequate performance of the sub-sector is therefore one of the explanations for the persistent levels of poverty in Uganda. Livestock products account for 17% of Agricultural Gross Domestic Product (GDP) and farmers are able to market two-thirds of the livestock produce as compared to one-third of crop produce. As enshrined in the government's Poverty Eradication Action Plan - PEAP (1997) and revised PEAP (2004), households with animals are less prone to poverty.

Despite the above observations, the livestock sector unfortunately, does not feature prominently in the PEAP and the National Integrated Monitoring and Evaluation Strategy (NIMES).

The way forward is therefore a multifaceted approach: to prioritize the livestock sector in the PEAP and NIMES with clearly defined indicators; to enhance access to veterinary services by rural farmers (especially those in the remote areas) taking advantage of the leverage of close to 600

veterinarians in the country; to encourage private practice and competitiveness among veterinarians; to streamline Public-Private Partnership (PPP) for private veterinarians to carry out clinical work for the government on contractual basis; improve efficiency, access and affordability of drugs by the majority of households through establishment of a functional veterinary input centre with direct linkage to international veterinary pharmaceutical companies; IEC for all stakeholders regarding veterinary services. This will enable farmers and practitioners to widen their market; constituting a new veterinary board as soon as possible and the need for skill development in veterinary practice in order to enhance demand for veterinary services.

The Directorate of Animal Resources (Uganda) position on Avian Influenza / Bird flu



Preparedness by the government of Uganda

- The Directorate of Animal Resources participated in the following Bird flu meetings in the region: OIE meeting held in Paris (7th - 8th August 2005); AU-IBAR meeting held in Nairobi (14th - 16th September 2005); 7th AU-IBAR Conference for Ministers responsible for animal resources held in Kigali (30th October - 4th November 2005); Participated in East African Community (EAC) preparedness meeting in Arusha 8th - 9th November 2005. In the latter meeting, the Permanent Secretaries published a joint statement on a common EAC regional epidemic preparedness and response to Avian Influenza.

- A strategy to deal with Bird Flu has been developed and presented to donors and Government for financing.
- A multisectoral national task force has been formed (Ministry of Agriculture, Animal Industry and Fisheries; Ministry of Health; Livestock Health Research Institute; Uganda Virus Research Institute; Conservationists . Uganda Wildlife Authority (UWA), Uganda Wildlife Education Centre (UWEC), Nature Uganda; Poultry Association of Uganda; Uganda Revenue Authority; Faculty of Veterinary Medicine Makerere University).
- An inter-laboratory diagnostic committee involving most of the laboratories in the country has been formed.
- The migratory routes for the wild birds in East Africa have been mapped out (Nile valley from Egypt to Sudan and Uganda spreading to the marshes and the wetlands; Eastern Rift Valley through Ethiopia, Somalia and Kenya; East African Coastline).
- A selective ban on poultry and poultry products importation has been instituted.

The recommended way forward:

- **Sensitization of the public about bird flu is ongoing (through various avenues including both the print and electronic media.**
- **Intensification of multisectoral surveillance in both domestic poultry and wild birds.**
- **Diagnostic baseline data collection is in progress.**
- **Every veterinarian will be provided with a brochure containing facts about the disease and technical guidelines for surveillance and reporting.**
- **Capacity building for staff in bird flu diagnosis and surveillance will be enhanced.**

Conclusion

To effectively position the livestock sub-sector in a leading role in poverty alleviation / reduction, African Governments, their development partners and other stakeholders must consider the following measures:

Poverty alleviation / reduction programs: Recognize that livestock has a central place in poverty reduction and strategically position it in their national poverty alleviation

/ reduction programs.

Market and market support: Develop both private and public marketing institutions for livestock and livestock products; Develop infrastructure such as roads, communication network, abattoirs and ports; Focus on local and regional markets before heavily investing in the international market; Develop sound market information systems both private and public; Diligently work towards achieving the WTO/OIE SPS.

Enabling policies and government reforms / programs: Develop effective and dynamic policy and legal review frameworks; develop and appropriately implement livestock-related programs; Use livestock development approaches that focus on enhancing the contribution that the animals and their products can make to the animal owners and community livelihoods.

Animal health delivery systems and disease control: Strengthen both private and public animal health delivery systems; Create disease free zones to produce for the international market; Enhance private-public partnerships in livestock production; Establish effective and efficient disease surveillance and reporting systems.

Regional cooperation: Establish regional collaboration in animal health and production matters.

Global trends: Diversify (training, research and practice) to unconventional livestock such as wildlife (bees, snakes, crocodile, fish, ostrich, guinea fowl etc.) and rigorously realign to global trends.

Research: Provide sufficient funding and develop / strengthen research management support systems.

Privatization of veterinary services: The programs for privatization of veterinary services in Uganda and Kenya have registered significant gains despite the challenges. The proposed improvements, based on lessons learnt over the years, aim at broadening the scope of the programs and strengthening Public-Private Partnership.

Avian influenza: The threat to the East African Region is real, therefore appropriate strategies must be developed, funded and methodically operationalized.

~ Dr. Sam G. Okech
CVA Councillor, Uganda



Uganda Veterinary Association

The following were elected as office bearers of the Uganda Veterinary Association.

President	Dr. Abed Bwanika
Vice-President	Dr. Daniel Onen Kaitaita
General Secretary	Dr. Isabirye Matte
Assistant Gen. Sec.	Dr. Frank N. Mwiine
Treasurer	Dr. Richard Mucunguzi
Assistant Treasurer	Dr. Baryeyanga E.

Ahimbisibwe

Committee Members

Prof. Jude Ogaa
Dr. (Ms) Hilda Ruhesi
Dr. (Mrs.) Alice Banga

CVA Councillor

Dr. Sam G. Okech

Zambia

New Councillor for Zambia

Dr Michelo S. Syakalima was elected as CVA Councillor for Zambia at the Veterinary Association of Zambia (VAZ) Annual General Meeting held on 9th August 2005.

Dr Syakalima graduated from the University of Zambia with a B.Vet.Med degree in 1989 and a M.Sc. in Tropical Veterinary Science from the University of Edinburgh, Scotland in 1992 and a Ph.D in Veterinary Medical Sciences - Pathobiology from Hokkaido University, Japan in 1998.



He has had many special trainings in agro-eco systems, meat sciences, embryo transfer and poultry diagnostics from a number of institutions in England, Scotland, South Africa, Mozambique and within Zambia. He has worked as Head of Department of Disease Control, Senior Lecturer in Clinical Pathology and BioChemistry, University of Zambia, acting Dean of the School of Veterinary Medicine, acting Head of Disease Control Department and as Veterinary Officer, Lendor Agriculture Holdings and as House Surgeon, Veterinary Teaching Clinic, University of Zambia.

He has attended many national and international workshops and has published over 20 scientific papers. The CVA welcomes Dr Syakalima as the new CVA Councillor from Zambia.

Zambia Veterinary Association

The Veterinary Association of Zambia (VAZ) held its Annual General Meeting on Tuesday 9th August 2005 and the following were elected as office bearers.

President	Dr. Dominic Minyoi
Vice President	Dr. Edwell Mwaanga
Secretary	Dr. Andrew Phiri
Vice Secretary	Dr. Edgar Kayesa
Treasurer	Dr. Hilda Lumbwe
Public Relations	Dr. Ngoza S. Lwao
Committee Members	Dr. Kennedy Choongo Dr. Hetron Munangandu Dr. Christine Chisembele
Regional Representative CVA Councillor	Dr. Andrew Mutampuka Dr. Michelo Syakalima

~ **Dr. Dominic Minyoi**
Immediate Past CVA Councillor, Zambia
and President, VAZ

Seasons Greetings and Every Good
Wish for a Happy and Prosperous New



President and
Members of Executive Committee of the

Kenya

Commemoration of the World Veterinary Day 2005

Kenya Veterinary Association celebrated World Veterinary Day on the 27th of April, by holding a field day and clinic for donkeys and dogs in a rural area. The theme of the field day was "**Mtunze punda akutunze, mtunze mbwa akulinde**" which translates into "**take care of your donkey and it will give you income, take care of your dog and it will guard you**"



The field day was a joint effort of the Department of Veterinary Services, the Kenya Veterinary Association (KVA) and the Kenya Network for Draught Animal Technology (KENDAT), and Kenya Society for the Protection and Care of Animals (KSPCA), and drug companies, mainly Norbrook Africa Limited. The chief guest was the Minister for Livestock and Fisheries Development represented by the acting Director of Veterinary Services Dr. Truphosa Otindo.



Throughout the field day, donkey owners and users were enlightened on pertinent issues concerning health, nutrition, preventive medicine and welfare of donkeys.



The field day was also aimed at enlightening dog owners on proper dog care, so that the dog can continue being a friend and guard homesteads, without risking human life.

~ Dr. JKN Kuria
CVA Councillor, Kenya

Veterinary critically important antimicrobials

The OIE is developing a list of veterinary critically important antimicrobials (VCIA) to safeguard the efficacy and availability of veterinary antimicrobial products for diseases where there are few or no antimicrobial alternatives and recently requested information from Member Countries. It is working in collaboration with Codex Alimentarius Commission, the World Health Organisation (WHO) and the Food and Agriculture Organisation of the United Nations on antimicrobial resistance issues. WHO is developing a list of critically important antimicrobials for human medicine.

~ Australian Vet J., Vol.83, No.12

South Africa

Report on FAMACHA Project

Essentially the FAMACHA® system enables farmers of any level of education to examine their sheep and goats for the degree of anaemia which they may have. The anaemia is most commonly due to the blood-sucking worm *Haemonchus contortus*, so instead of blindly treating all livestock, only those needing treatment are drenched.

The Zambian Veterinary Conference, combined with the CVA ECS Regional Conference, was held from 3 to 6 August 2004 in Lusaka. The organisers had set aside an opportunity for a formal lecture to give the participants the background and scientific work which led to the development and establishment of the FAMACHA system. This also allowed for a practical demonstration on how they could effectively train farmers within a relatively short period, without resorting to technical terms which could create uncertainty or confusion. This lecture also generated a lively debate and many questions. The approximately 40 participants were persuaded of the value of the underlying concept (only treating animals which need it) and of the folly of intensive, simultaneous treatment regimes, which can lead only to widespread multiple anthelmintic resistance in sheep and goat worms. After the lecture, participants were taken to the area where the Faculty sheep and goats were housed and were given practical demonstration on the ease, speed and reliability of FAMACHA evaluations.

Finally they were invited to practice the technique themselves and confirm its practical applicability for on-farm situations. The participants left confident and convinced of its value in their respective regions and countries. Following the training sessions, a lot of discussion could be heard between participants during breaks at the conference. This was an indication of the impact the FAMACHA system had made.

Subsequent to the conference, at a meeting of CVA ECS African region councillors, FAMACHA sets (cards, documents, pamphlets) were distributed to those attending the meeting. In addition, videos, compact disks, and scientific reports were handed out to all the participants.

The role of the CVA in facilitating and enabling the training session as well as the distribution of material was given particular emphasis.

Conclusion

While the long-term impact of this project lies beyond

the scope and term of this report, it can safely be said that, judging by the impact in numerous countries in the French Caribbean, in North, Central and South America, and elsewhere, the usefulness of this project to all active ECS African regional members of CVA should be beyond question. Already the impact in Uganda has been indicated by the feedback from Uganda's CVA Councillor, Dr S.G. Okech. I am convinced that the CVA's contribution was well spent and will prove of long-term benefit to the Region.

I thank the former RR, Dr Jaumally, for his support in getting this project approved. I also thank the current RR, Dr Ogara, for his support and assistance in its implementation, as well as the respective councillors for Zambia (Dr Minyoi) and Uganda (Dr Okech) and their national veterinary associations for making the training possible. Finally I thank the CVA Executive for their support and assistance in approving the project and facilitating its implementation.

Recommendations

The FAMACHA system has worked so well around the world that the CVA should consider facilitating its implementation in all CVA countries where *Haemonchus contortus* is an economic problem in sheep or goats. Training sessions and distribution of material could now be considered for the Caribbean, Asian, and Pacific member countries at their regional meetings.

Due to the limitations placed on the numbers of FAMACHA sets which can be distributed, caused by financial constraints, the developers of the system are actively pursuing ways to reducing the unit cost. The developments currently under evaluation are a considerable reduction in the size of the card, and changing instruction pamphlets to black and white, to be printed by the target country instead of shipping heavy full colour pamphlets at great cost.

Another strong recommendation is for CVA to assist with the interpretation of the pamphlet and supporting documents into appropriate vernacular languages. This would be very valuable to get maximum use of the system.

~ Prof Gareth Bath
CVA Councillor, SAVA

West Africa

Ghana

Ghana Veterinary Medical Association

Veterinary Week Celebration

The Ghana Veterinary Medical Association (GVMA) celebrated a successful Veterinary Week from 22nd – 29th April 2005 and that coincided with World Veterinary Day, which was observed world wide on 30th April 2005.

Activities undertaken included a Press Conference at the Ghana International Press House on 22nd April 2005 to launch the programme. A day's workshop on Food Safety and Food Security was organized on 27th April at the Agriculture Resource Centre in Accra. Resource persons who presented papers were drawn from the Veterinary Services, the Food and Drugs Board, Environmental Protection Agency, Tourist Board, Accra Metropolitan Assembly and a food hygiene specialist from the Accra Polytechnic. The audiences were local caterers, food vendors, butchers and other stakeholders in the food industry. Attendance was very encouraging with

250 participants.

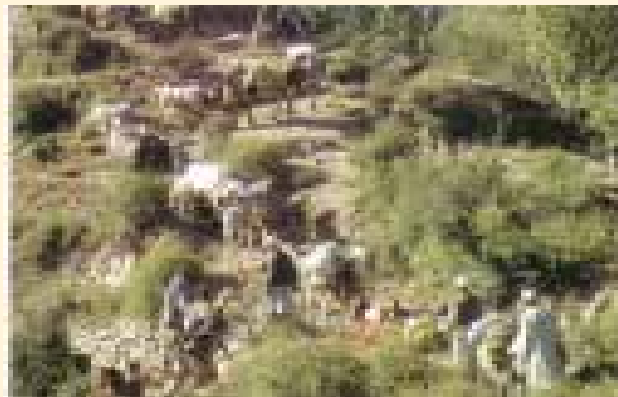
An outreach programme, in which pets were vaccinated free of charge against rabies and sheep and goats were also dewormed free of charge, was carried out in villages North-East of Accra (Abokobi and surrounding villages).

In addition radio and television programmes were undertaken. Deputy Minister of Food and Agriculture, in charge of livestock, read a speech on behalf of the Minister of Food and Agriculture who could not attend the meeting.

~ **Dr. EBM Koney**
GVMA, President

Earthquake Relief

A donkey train (below) organised by the British equine charity. The Brooke is carrying supplies of food and medicine into a remote area of Pakistan to bring help to people affected by the earthquake that struck the region on October 8. Operating from Balakot in Pakistan's North-West Frontier, Brooke veterinarians are leading the



donkey train to areas that need aid. Blocked and damaged roads have meant that many villages are unreachable by vehicle and there is still a lack of helicopters for distributing supplies and ferrying the injured. The donkey train will also transport people who need emergency treatment. Along the way, the veterinary surgeons will treat livestock and working animals that need help. Such animals are among the only possessions that many people

have left following the earthquake and, in normal circumstances, each horse or donkey would provide an income for approximately six people.

The Brooke has also established three mobile clinics in Muzaffarabad, Balakot and Shinkiari. Hundreds of animals died in the earthquake and many of the equids that have been treated by the Brooke were suffering from stress, work-related injuries, galls, malnutrition, and parasitic problems.

~ **The Veterinary Record, October 29, 2005**

UK/Mediterranean

United

New BVA President



Dr. Freda Scott-Park, was elected President of British Veterinary Association for the period 2005-06 and Mr. David Catlow as President-Elect at the Annual General Meeting on 2 October 2005 .

Dr Scott-Park graduated from the Royal (Dick) School of Veterinary Studies in Edinburgh in 1979 and went on to study for a PhD in canine cardiology. She spent eight years in mixed, mainly small animal practice, in Glasgow and five years as a part-time lecturer to veterinary nurses at Edinburgh's Telford College.



New Officer Team for 2005/06
L-R: Dr Bob McCracken, Past President, BVA, Dr Scott-Park, President and Mr David Catlow, President-Elect

~ The Veterinary Record, October 8, 2005

BVA President Calls for Responsibility for Biosecurity to be Shared

Speaking at the Welcome Reception at the start of the British Veterinary Association London Congress, BVA President Dr Bob McCracken said: "Responsibility for biosecurity is a joint one that must be shared by all who have a responsibility for animals - farm and companion animals. It must include Defra, the State Veterinary Service, those who trade in animals and of course, the veterinary profession, but also animal keepers. Effective biosecurity starts at the international level through national to farms and to companion animal homes. Unfortunately epizootic diseases, zoonotic diseases and novel, emerging diseases are no respecter of animal species and can infect not only farm but also companion animals."

Central to many of the lectures taking place at Congress was the fact that "the conventional barriers of mountain and ocean are a thing of the past, and cannot

be relied upon", said Dr McCracken highlighting in particular the Wooldridge Memorial Lecture, 'No longer an island - disease challenges in a shrinking world', to be given by the distinguished scientist Professor Paul Gibbs, of the Department of Pathobiology at the University of Florida. "In relation to animal pathogens and their international movements, the world is a mere village. Man is an ever-increasing and frequent world traveller. Animals and animal products travel with him. We must never forget that pathogens are also frequent fliers and this demands that the medical and veterinary professions work more closely together than ever before" Dr McCracken stressed.

~ Nadin Sajakow, BVA

Recognition for Contribution to Animal Welfare

Lord Soulsby of Swaffham Prior was among the award winners at this year's Animal Health Trust UK Equestrian Awards. Lord Soulsby, pictured with Mrs Jan Wade of the awards organising committee, received the Equistro Veterinary Achievement Award from Mr Tom Robitaille (left), managing director of Vetoquinol, for his contributions to animal welfare.



Lord Soulsby was elected to the peerage in 1990, and is the only veterinary surgeon in either of the Houses of Parliament. He has served on numerous select committees over the past 15 years. The citation read at the awards ceremony on Oct 17, 2005 described how he had also held a large number of appointments during his career, all of which related to his expertise and passion for animals and their welfare.

~ The Veterinary Record, November 19, 2005

BVA Calls for Immediate Action to Tackle Bovine TB

The British Veterinary Association (BVA) has urged government to 'take action now to tighten control measures within the cattle population' based on a regional approach 'which accounts for differences in the local prevalence of bovine tuberculosis'. In conjunction with increased cattle controls, the BVA has also urged government to 'start tackling the disease humanely in the badger population', arguing that 'waiting another year for publication of the results of the culling trials before taking action will pose a further risk to animal health and welfare' leading to increased infection within the two populations as well as an increase in the potential risk to human health.

~ Nadin Sajakow, BVA

Avian Influenza - Still a Disease of Birds

The British Veterinary Association (BVA) President Dr Freda Scott-Park urged a sense of perspective over Avian Influenza. "Despite millions of birds having been infected in Asia and many thousands of people having been in close contact with those birds, the disease has only affected 119 people resulting in 60 deaths" she stressed.

"While we must not be complacent about the risk of human disease and possibly mortality, it is important to keep things in perspective" she said. "We do, however, need to be prepared, to be vigilant and to communicate. To that end BVA is in close, indeed daily contact with Defra".

According to Dr Scott-Park the key issues to be addressed were:

- Surveillance: we need to know when the disease arrives;
- Isolation and slaughter of sick, dead or dying birds pending laboratory confirmation;
- Advice to poultry owners: domestic flock owners in particular should endeavour to protect their birds by following the advice on biosecurity produced by the Poultry Club of Great Britain; and
- Vigilance not least on the part of the public, who are asked to report any dramatic local incident such as a large number of dead, dying or sick birds to the Defra Hotline on 08459 335577

~ Nadin Sajakow, BVA

Expanding the RCS

The expansion of the Club premises of the Royal Commonwealth Society is now underway. RCS is working with both Mellersh & Harding and MoreySmith Ltd to ensure the successful refurbishment of three floors in the adjacent building at 25 Northumberland Avenue. The new expanded home of the Royal Commonwealth Society will be a magnificent and dynamic multi-cultural Commonwealth Centre in the heart of London.

~ Helena Cotton, BVA

CALENDAR OF EVENTS

2006

49th British Small Animal Veterinary Association Congress, Birmingham, UK. **6 - 9, April.**

Annual Conference of the Australian Veterinary Association (AVA), Hobart, Tasmania, Australia. **21 - 26, May.**

83rd New Zealand Veterinary Association (NZVA) Conference in conjunction with the 14th Congress of the Federation of Asian Veterinary Associations (FAVA), Auckland, New Zealand. **26 - 28 May.**

Executive Committee Meeting of Commonwealth Veterinary Association (CVA), Belfast, Ireland. **29 June - 1 July.**

58th Annual Canadian Veterinary Medical Association (CVMA) Convention, St. John's, Newfoundland, Canada. **5-8, July.**

31st World Small Animal Veterinary Association (WSAVA), 12th European Congress - FECAVA; 14th Czech Small Animal Veterinary Association Congress (CSAVA), Prague, Czech Republic. **11 - 14, October.**

CVA Regional Meeting of West African Region. **(Date and Venue to be announced)**

CVA Regional Meeting of UK/Mediterranean Region, Malta. **(Date to be announced)**

2007

4th Pan Commonwealth Veterinary Conference, Barbados, West Indies. **4 - 8, November.**

2008

CVA Regional Meeting of Australasia/Oceania Region, Apia, Samoa. **(Date to be announced)**

CVA Regional Meeting of ECS African Region, Kampala, Uganda. **(Date to be announced)**

CVA Regional Meeting of Asian Region. **(Date and Venue to be announced)**

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