

CSAW News

The Colonel K.L. Campbell
CENTRE for the STUDY of
ANIMAL WELFARE

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Do Fish Experience Fear?

Fish are used in scientific experimentation almost as frequently as mice. While the welfare of laboratory mice has been studied extensively, similar research on fish is almost non-existent. Stephanie Yue, a PhD. Student at the University of Guelph, is working on changing that. Under the guidance of professors Richard Moccia and Ian Duncan, Stephanie is assessing the capacity for suffering in domesticated rainbow trout (*Oncorhynchus mykiss*) by examining the fish's learning, memory capacity (cognition) and characteristics of sentience.

Sentience is a term used to describe a 'level of conscious awareness'. If an animal is sentient, it has the capacity for feelings such as fear, pain and frustration. The welfare of an animal is defined by how it feels. Humans are undoubtedly sentient, and most scientists agree that mammals and birds are sentient; however a great divide exists between researchers over whether fish can be considered sentient. Some believe that fish do not possess the necessary structures in the brain to allow conscious suffering from negative experiences. Others maintain that fish *do* possess the necessary structures, and *do* demonstrate behavioural and physiological responses that are similar to those shown in sentient animals.

Fish don't always display the unambiguous signs of suffering common to other animals. There remains, therefore, a great deal to learn about assessing suffering in fish. New information in this area could be used to improve the care, handling and management of fish in laboratory and other captive conditions.

To that end, Stephanie performed a series of experiments designed to explore the psychological aspects of stress responses in fish. In her first experiment, the capacity

of rainbow trout to experience fear was investigated. The fish were shown a frightening stimulus (a fish net was plunged into the tank) and were given the opportunity to escape through a door to an adjacent tank. The fish quickly escaped. They were then shown a light 10 seconds before the net came into the water. Over a 5-day period, all the fish learned to avoid the plunging net by escaping when the lamp was illuminated. Interestingly, after a 7-day period without testing, the fish responded to the light in the same way, suggesting the capacity for longer-term memory. Rather than being immediate and reflexive-like, these responses were more deliberate in nature, which may indicate that trout's avoidance responses are motivated by fear. The implication is that fish are sentient animals and more complex than previously thought.

To build on these results, Stephanie's current experiment explores fear in more depth. First the fish will be trained to press a pendulum for a food reward. They will then be taught to associate a light with the aversive appearance of the net. The fish will then be shown a light when they are pressing the pendulum to see if the light stimulus suppresses their behaviour. If the fish stop pressing the pendulum for the reward, and swim away anticipating a plunging net, they will be demonstrating the

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New Pig Health and Welfare Standards in Britain Similar to Canadian Program

Both the Canadian and the British pork industries have taken a leading role in developing a national strategy that promotes health and welfare of pigs. In December 2003, the British pig industry announced a new pig health and welfare strategy intended to benefit all aspects of the industry as follows:

1. *Improving the health of pigs will benefit customers through better quality meat and meat products*
2. *It will benefit producers and processors by saving costs and improving competitiveness*
3. *It will benefit the pigs themselves through improved welfare*
4. *It will benefit the country as a whole in helping to achieve government policy of a sustainable rural economy.*

Key stakeholders throughout the pig industry developed this new strategy, which builds on the standards and guidelines outlined in the *Code of Recommendations for the Welfare of Livestock: Pigs*, and the *Animal Health and Welfare Strategy*. The new strategy identifies nine priority areas including, but not limited to, the establishment of a baseline level of health, welfare and disease status from the

existing national herd (against which to measure changes), enhanced disease surveillance, the development of biosecurity protocols, and enhanced training in disease identification and treatment. The strategy sets a timeline of 10 years for sustainable improvement that is demonstrable and economically viable.

The Canadian Pork Council (CPC) introduced a similar strategy back in 1998 when it launched the Canadian Quality Assurance Program (CGQ®). The initial phase of the program was the establishment of an on-farm food safety program for pork producers, but the CPC approved an initiative in November 2002 to develop auditable on-farm guidelines for animal care in the pig industry that complemented the existing CQA® program. The goal is to promote animal care on Canadian hog farms and to develop a mechanism to demonstrate that these practices are being followed. The working group that was formed recommended building the auditable guidelines from the existing *Codes of Practice*, and ensuring that key stakeholders partake in the development process. In April 2004, the CPC announced that a draft program now existed and was being taken to the next step.

Problems with Live Animal Transport: What Australia did with their stranded sheep

On August 5th, 2003, 57,000 sheep left Australia bound for the Middle East (Saudi Arabia). The journey usually takes 16 days, however, this particular trip took 79 days, and during this time an estimated 5,350 sheep perished due to heat stress. The shipment of live sheep was initially refused by Saudi Arabia under claims that 6% of the animals on board were infected with scabby mouth disease (a highly contagious viral disease that is not usually fatal)—1% over the governmental allowances. This figure was much higher than that claimed by the Australian government (0.35%), but the sheep were still not allowed to dock. As the weeks passed, the sheep were then offered free to over 25 countries—all of which refused the sheep due to health concerns despite an independent veterinarian report claiming the sheep were disease free. The Australian government came under intense pressure to do something for the sheep (either take them back, or slaughter them humanely at sea) as the sheep began to die of heat stress. This pressure was in addition to the frequent demands made to end live trade of sheep from Australia due to

claims that is “stressful, cruel and torturous to animals”. The Australian government ruled out taking the sheep back due to strict agricultural regulations that prevent animals that leave Australia from returning due to the threat of disease to other livestock industries—as it was thought likely that the sheep were exposed to insect-transmitted diseases not found in Australia (blue tongue, Rift Valley fever, sheep pox, and infestations by screw worm flies). The Australian Agriculture Minister, Warren Truss, was involved in sensitive, closed-door negotiations that resulted in the Australian government buying back the sheep for approximately \$3.1 million (US). Instead of shipping the sheep back to Australia, the sheep were shipped to the African nation of Eritrea, one of the world’s poorest countries, where the sheep were slaughtered and distributed to the country’s citizens.

Australia is the largest sheep exporter in the world. Approximately 6 million sheep in 160 shiploads are sent to the Middle East (primarily Saudi Arabia) each year and the
...continued on next page

Caught in a Crisis: Parts of the world deal with Avian Influenza

Earlier this year, reports of an outbreak of avian influenza (AI) surfaced—first in South Korea, then in Vietnam, followed quickly by Japan, Taiwan, Cambodia, Laos, Pakistan, China, Indonesia, USA (Texas) and then in British Columbia, Canada. Avian influenza is a highly infectious disease of birds that is characterized by “sudden onset, severe illness, and rapid death”. Due to its highly infectious nature, the usual strategy to deal with AI involves the complete depopulation of infected flocks, as well as all flocks within a preset radius.

As the countries began culling their flocks, disturbing reports and pictures of inhumane slaughter techniques from parts of Asia arose. The allegations included chickens being put into a pit, doused with gasoline, and burned alive in China; chickens being buried alive in pits in Thailand; and chickens being beaten to death with sticks before burying them in plastic bags in Vietnam. Slaughtering large numbers of animals on-site does pose many challenges, such as time demands, lack of skilled personnel, suitable on-farm slaughter methods, and varying production facilities; however, strong efforts should be made to ensure that animals are slaughtered humanely.

Here in Canada, the Canadian Food Inspection Agency (CFIA) is responsible for controlling the outbreak, and eradicating AI. A total of 20 million commercial birds were affected by this outbreak. Farms confirmed to have chickens infected with AI, had their flocks slaughtered on-site, while healthy flocks were permitted to mature and got to market. CFIA indicated that methods used to destroy the birds varied, but only humane methods of slaughter were used.

Canada introduces more Codes of Practice

In 2004, the Canadian Agri-Food Research Council (CARC) published a *Recommended Code of Practice for Goats*. Adding to the revised Poultry Codes (1. *Poultry Layers* and 2. *Chickens, Turkeys & Breeders from Hatchery to Processing Plant*) and addendum to the Swine Code (*Early Weaned Pigs*) in 2003, this brings the total number of Recommended Codes of Practice to 15. Fact-sheets have also been developed from each of the Codes for use in teaching agriculture in the classroom, agricultural fairs and exhibitions. The addition of two Fact-sheets for Poultry in 2003 (*Poultry Meat* and *Poultry Layers*) brings the total number of Factsheets available to 19.

The Codes of Practice are nationally developed guidelines for the care and handling of different species of farm animals. The Codes are not intended to be used as production manuals but rather as an educational tool in the promotion of sound husbandry and welfare practices for every aspect of animal production, including transportation and slaughter. The Codes contain recommendations that producers and others can use to compare and improve management practices. All Codes are presently developed by a Review Committee made up of representatives from farm groups, animal welfare groups, veterinarians, animal scientists, federal and provincial governments, related agricultural sectors and interested individuals.

For a complete listing, and for copies of Factsheets and Codes of Practice, please visit www.carc-crac.ca.

Stranded sheep continued...

industry is worth roughly \$680 million (US). The estimated number of sheep that die on their way from Australia to the Middle East each year is 78,000. Animal groups have been demanding that the Australian government ban the export of live animals over concerns with transportation and humane slaughter once the animals reach their destination. This situation once again highlighted the need to revisit Australian animal protection laws as animal proponents argue that high animal welfare standards are of no good to sheep destined for live trade if the standards are only applicable while the sheep are on Australian soil. Truss indicated that Australia was looking into several options to prevent something similar from happening again, but added that the only way for animal protection laws to improve was through continued trade. Some of the options include setting up an off-shore facility for holding and slaughtering animals rejected by importing countries, and having veterinarians from importing countries sign off on health checks before animals leave Australia.



Do Laboratory Rats Benefit from More Cage Space?

By Alyssa Foulkes

In the United States, rodents used in research are commonly kept in minimum sized, barren cages. In Canada, trends towards environmental enrichment have been implemented in many research facilities. However, biomedical researchers do occasionally require animals to be housed in small, wire bottom cages for the purpose of urine and feces collection. Investigators often argue that the animals do not find such living quarters to be stressful, and that they would not make use of additional space.

To test whether or not this assumption was correct, 24 male rats were assigned to one of the following four, individual, housing treatments:

Group 1: small barren cage (nothing in the cage besides food and water)

Group 2: small enriched cage (2 pieces of PVC tube (6cm long x 3cm wide) + a Nylabone™ + food and water)

Group 3: large barren cage (nothing in the cage besides food and water)

Group 4: large enriched cage (2 pieces of PVC tube (6cm long x 3cm wide) + a Nylabone™ + food and water)

Small cages provided rats with 432 cm² of floor space, whereas large cages provided 1088 cm². The amount of time spent moving around, resting on the cage floor, using the PVC tube (resting in or on it) and using the Nylabone™ [gnawing, pushing around] was recorded for each rat, four times a week, over a period of six weeks. Once a week the amount of food consumed, body weights and rats' stress levels were recorded. Stress levels were estimated by scoring the porphyrin staining around the nose and back of the neck of each rat. Porphyrin is a red pigment that is secreted by the Harderian glands when a rat is stressed.

Regardless of the housing treatment, the rats of all four groups spent about the same percentage of the observation time moving around (~30%) and resting (~54%). This implies that neither the provision of more space, nor the provision of enrichment encouraged the animals to engage in more exercise.



Those rats who lived in enriched cages spent ~3% of the observation time using the Nylabone™ compared to more than 40% of the time using the PVC tube. Both in the small and large cages, the animals spent more time resting in/on the PVC tube (~30%) than on the wire floor (~23%). This suggests that rats feel more comfortable and perhaps more secure with a PVC tube offering an elevated vantage point plus seclusion, than with the wire floor. The porphyrin scores substantiate this assumption, as the scores were significantly higher in rats housed in small or large cages that were barren than in rats housed in small or large enriched cages. Interestingly, the lowest porphyrin scores were found in rats living in the large enriched cages, suggesting that rats found this housing environment the least stressful of the four. Moreover, rats kept in barren cages consumed more food and gained significantly more weight than rats kept in enriched cages suggesting that obesity in rats is linked to stressful living conditions.

In conclusion, laboratory rats do not benefit from more cage space, unless they are provided with proper enrichment items such as a PVC tube. Being confined in a small standard cage is a much more stressful experience for rats than being confined in a larger cage furnished with a PVC tube. Access to a PVC tube reduces a rat's stress level in a small cage, but the stress is still much higher than in a large cage with a PVC tube.

Stress is a sign of poor welfare. Housing laboratory rats in larger cages that are furnished with PVC tubes rather than in small standard cages would, therefore, contribute to the animals' welfare. It would also improve scientific research methodology by reducing the variable stress resulting from inappropriate living quarters.

Alyssa Foulkes is currently working at the Central Animal Facility at the University of Guelph as well as studying for her MSc. She was given the 2003 Refinement Award from the Animal Welfare Institute to fund this study.

Clinical Veterinarian at Animal Care Services Offers Researchers Additional Resource

Before any animal can be used for research at the University of Guelph, a detailed description of the proposed treatments and/or procedures is completed. The proposal, known as an Animal Utilization Protocol (AUP), must be approved by the University Animal Care Committee before the project can begin. Animal Care Services (ACS) offers several workshops and courses designed to help researchers prepare an acceptable AUP, as well as enhance their understanding of proper animal care and use, and the regulations that govern them. Researchers are also given access to individualized, hands-on consultation by Dr. Marcus Litman in several areas including: anesthesia, analgesia and surgery. When invasive techniques are required, Dr. Litman liaises with individual researchers and their team, to develop customized assessment systems.

Appropriate assessment ensures that the health and welfare of the research animals meets or exceeds the strict standards of the University. These assessment programs are designed to recognize and document pre-determined experimental endpoints triggering the removal of animals from experimental treatments and thereby preventing unnecessary pain or distress.

Dr. Litman joined the ACS team in January 2003, as a Clinical Veterinarian. After he completed his veterinary degree at the Ontario Veterinary College, Dr. Litman worked in clinical practice in Hamilton for several years before accepting the position at ACS. His role at ACS as

Clinical Veterinarian is continually evolving thanks to the diverse challenges, opportunities and responsibilities the university environment offers. In addition to helping researchers with their experimental protocols, Dr. Litman also provides hands on and theoretical training to undergraduates, veterinary and graduate students, and is involved in the workshops hosted by ACS to the university community. Dr. Litman is also involved outside of the university, with Canadian and American animal care organizations.

Dr. Litman notes that a DVM degree affords one tremendous flexibility and opportunity. One of his goals is to help expand the role of veterinarians to include more involvement in lab animal medicine; “lab animals have historically [been], and are still, under-served by vets – I would like to be a part of changing this”.

Animal Care Services helps administer the use of animals in research, teaching and testing at the University of Guelph, which is the largest institution in Canada in terms of faculty, projects and animals involved.

- Over 650 projects on file
- ~139,000 animals per year used in research
- Over 225 faculty
- Over 50 facilities

For more information on Animal Care Services at the University of Guelph, please visit the website: www.uoguelph.ca/research/acs/.

Horse Behaviour Research:

How do horses decide whom they like to be with?

Kate Sawford (OVC 2006) has traveled to Iceland this summer to continue her study of affiliative behaviour in horses; “friendly” behaviour towards a social partner. Kate is looking at the relationships horses form when they are put together into groups.

To answer these questions, Kate is observing the behaviour of young mares when they are pastured with individuals they have never met before. The twelve young mares selected for her study were sired by three Icelandic stallions, and split amongst two pastures. Kate will spend four weeks observing the development of social relationships among the six mares in each pasture. She is interested in seeing if mares prefer the company of their unfamiliar half-sisters or whether other traits, such as coat colour, are important. After one month of observation, half of the mares will be exchanged between the two pastures (one from each half-sister pair) to test the reliability of the way that mares select their social partners.

Horses form strong social bonds. If Kate’s results assist farm managers to predict which horses are likely to get along, then this could be used as a management tool in various horse facilities. It could provide greater opportunity for horses to spend more time outside and in social groups, as well as decrease potential aggressive encounters and resulting injuries.

Kate has been working on this project with Víkingur Gunnarsson, Director of the Horse Department at Hólaskóli Skúli Skúlason, Rektor of Hólaskóli and Hrefna Sigurjónsdóttir, Professor of Biology at the Iceland University of Education.



Spotlight on Faculty: Dr. Suzanne Millman

In July 2002, Dr. Suzanne Millman, joined the faculty at the Ontario Veterinary College (OVC) as Assistant Professor of Large Animal Behaviour and Welfare in the Department of Population Medicine. After completing a Bachelor of Science from the University of Guelph, Suzanne lived on the west coast of Scotland, just north of Glasgow, as a shepherd, as well as in Athens, Greece where she worked with performance horses (jumpers). Upon returning to Canada, Suzanne enrolled in a doctorate program at Guelph where she worked under the guidance of Dr. Ian J.H. Duncan investigating extreme aggressiveness in broiler breeder males. Upon completion of her PhD., Suzanne accepted a position as Director of Scientific Programs in the Farm Animals and Sustainable Agriculture Section at the Humane Society of the United States. This was a new program, self-directed by Suzanne, where she acted as a bridge between activists, academics, policy makers and producers. One of her key responsibilities at HSUS was to raise awareness of the science of animal welfare and welfare friendly husbandry practices. Suzanne has maintained her involvement on the Certified Humane Scientific Committee after returning to Canada to begin her position at OVC. (Certified Humane is a third-party certification program for producers marketing animal-welfare-friendly meet, eggs and milk.)

At OVC, Suzanne received NSERC funding to explore the effects of illness on social dynamics and behavioural

needs of swine. Suzanne is currently investigating the needs of ill swine to improve well-being and to decrease the reliance on antimicrobials. With this project, Suzanne and her team (Research Assistant Kimberly Sheppard, and MSc. Candidate Andrew Colgoni) are looking to better understand the behavioural response of swine to illness, a concept with significant implications for reducing suffering and improving health. "Improving our understanding of sickness behaviour will help us in diagnosing illness early in sub-clinical stages and gives us options to improve



how we care for these vulnerable populations. This will have significant implications towards decreasing suffering and increasing welfare".

Suzanne teaches the behaviour and welfare component of Health Management I and II to veterinary students. In September, Suzanne is offering for the first time, an animal welfare elective available to final year veterinary students, and a

graduate level animal welfare course (Special Topics in Population Medicine—Applied Animal Welfare). Suzanne also mentors a group of 12 veterinary students from across the four phases, who share a common interest in behaviour and welfare.

Suzanne and her husband, Dr. Jeff Gray, have a small farm in Belwood, Ontario where they are starting a breeding program with cashmere goats and Jacob sheep.

Fear, continued from page 1...

ability to associate a fearful stimulus to a 'new' environment and situation. Demonstration of this non-reflexive response should help quantify their level of conscious behaviour.

Fear and social stress are negative experiences that often decrease farm animal welfare. If fish also demonstrate the ability to suffer from these states, producers will need to seriously consider the welfare of these animals. If, however, the results suggest that fish do not have the ability to suffer psychologically, perhaps fish farmers need not worry about their current management and husbandry practices from

an animal ethics perspective, and can concentrate on minimizing stress responses for the purposes of maximizing production.

Stephanie Yue is a PhD. Candidate in the department of Animal & Poultry Science at the University of Guelph. Stephanie is one of 13 recipients of the 2004 Animal Welfare Enhancement Awards given by the Animal Welfare Institute and the Johns Hopkins Center for Alternatives to Animal Testing. This annual award is for studies aimed at enhancing laboratory animal welfare.

PUBLIC LECTURE ON ANIMAL WELFARE

How Much is Too Much? Assessing pain in farm animals

What is pain? Do animals feel pain? How can we tell if animals feel pain? Why assess pain? What can be done about animal pain? These are just a few of the questions Professor Vince Molony, Chair in Animal Welfare at the Royal (Dick) School of Veterinary Medicine at the University of Edinburgh addressed during his presentation on 'Pain in Animals' for the second Basil Capes Memorial Lecture on March 9th, 2004.

Professor Molony's talk focused on 20 years of research conducted at the 'Dick' on the assessment of pain in lambs after castration and tail docking, and in calves after castration. The research group in Edinburgh has concentrated on developing methods to assess the pain associated with these procedures, to better understand the physiological and behavioural mechanisms of the long-term and short-term pain associated with these procedures, and to develop more humane practices for tail docking and castration.

Molony emphasized the importance of creating a working definition for pain in animals as the best method for continually improving ways of assessing pain, and improving procedures conducted on farm animals. Developing ways to assess pain has many applications. For example, pain assessment methods can be used to better understand how procedures conducted on animals affect their welfare, and whether or not treating the pain, and/or its cause, will reduce suffering. Developing ways to assess pain can also be used to compare different treatments and procedures, as well as pinpoint when there is no effective treatment for pain, whether the most humane action is to euthanize an animal.

How to assess animal pain?

Molony underlined the need of assessing pain by using a wide range of indices that could be easily measured, charted and analyzed, including both physiological and behavioural items. Examples of indices include measuring levels of the stress hormone, plasma cortisol (physiological index), and abnormal changes in posture (behavioural index). When developing pain indices for measuring castration and tail docking in lambs, Molony and his colleagues conferred with local shepherds and farmers in addition to published research and their own expertise. Molony stressed the importance of getting people who work with animals on a daily basis involved in research. These animal caretakers can provide a wealth of information regarding commercial application, as researchers usually work with small groups of animals in non-commercial settings. As well, establishing links between people in the field and researchers provides ways for better

understanding of research findings, as well as identifying areas for further study.

Where do we go from here?

A key message reiterated by Molony throughout his entire talk was that even though pain research has been conducted for many years, there are still many unknowns. Molony stressed the need to continue to work towards finding new methods that eliminate or reduce pain in animal procedures, and that these new methods are commercially applicable and economically viable. In some cases, it may be necessary to impose new regulations for the adoption of new methods. In these cases, documented evidence of indices could be provided to government to permit the development of such regulations. Lastly, Molony highlighted that the ideas presented in this talk could be applied to pain in other animals.

For more information on the pain research being conducted at the Royal (Dick) School of Veterinary Medicine at the University of Edinburgh, please visit their website at: www.vet.ed.ac.uk/animalpain/.



Two Suffolk cross lambs, one lying in a normal V2 posture and one, after rubber ring castration, lying on its sternum with full extension of the hind legs (V4). (Photo courtesy of Animal Welfare Research Group, Royal (Dick) School of Veterinary Studies.)

A number of courses are offered that cover topics relating to animal behaviour and welfare. Some courses offer materials that are exclusively behaviour and welfare related; some offer component parts, while others offer the flexibility to allow students to explore a topic of their choosing. For further details on the following courses and others, check out www.uoguelph.ca/academics/

Undergraduate Level Courses:

- UNIV*1200 Animal Welfare: Does it Matter?
- PSYC*1100 Principles of Behaviour
- AGR*1250 Agri-food System Trends and Issues
- PHIL*2030 Philosophy of Medicine
- PSYC*2330 Principles of Learning
- AGR*2350 Animal Production Systems and Industry
- AGR*2360 Challenges and Opportunities in Animal Production
- ANSC*3150 Principles of Farm Animal Care and Welfare
- PSYC*3430 Topics in Animal Learning and Cognition
- ANSC*4070 Applied Animal Behaviour
- ZOO*4070 Animal Behaviour
- ANSC*4080 Environmental Management and Animal Productivity
- ZOO*4090 Ornithology
- ZOO*4390 Environmental Physiology
- AGR*4400 Independent Research
- AGR*4450 Research Project in Agriculture I
- AGR*4460 Research Project in Agriculture II
- ANSC*4610 Critical Analysis in Animal Science

Veterinary Studies:

- Students have behaviour and welfare for 6 hr lecture and 2 hrs lab in first year, then about 20 hrs of lecture & lab in second year.
- An animal welfare elective for fourth year students and a graduate level animal welfare course will be offered for the first time in September 2004.

Graduate Level Courses:

- ANSC*6440 Advanced Concepts and Methods in Applied Ethology
- UNIV*6600 Animal Care Short Course



Animal Welfare Judging Team Report

On March 5th, a team from the University of Guelph once again competed in the 3rd Annual Animal Welfare Judging Competition hosted by Michigan State University in East Lansing, Michigan. This year's team of five students (team of four plus one reserve) was: Dan Columbus, Kelly Esford, Amy Johnson, Laura Pratola and Nella Scalzo.

This year there were teams from University of Wisconsin, Michigan State University, Oregon State University, Penn State University, Purdue University, University of Vermont, Cornell University, and University of Guelph. There were also observers from Ohio State University.

The competition had both an individual and team component to it. For the individual component, each student reviewed four different welfare scenarios, with the students having to rank these and give reasons for their ranking. This year the scenarios were (1) two swine farms, (2) two dairy farms, (3) two sheep farms, and (4) a cow-calf operation and a brood mare farm. For the team component, the team had to assess a broiler operation (from the chick stage right through to transportation and slaughter). They had to enumerate all the ways in which the welfare of the birds could be improved.

In the afternoon they went before individual judges and gave their rankings together with reasons. This year's judges were: Dr. Harold Gonyou (swine), Dr. Janice Swanson (beef and horses), Dr. James Kinder (sheep), Dr. Ruth Newberry (broilers).

The MSU team won the competition for the third successive year. The Guelph team missed winning the team assessment of the broiler scenario by one point (out of a couple of hundred points).

This competition sharpens judgment skills and improves logical thinking. It also means that the students can argue about welfare in a rational and persuasive manner—a skill that will serve them well for the rest of their lives.

I am extremely grateful to the Animal Welfare Foundation of Canada and to an anonymous donor for generous financial support, which made this trip possible.

Ian J.H. Duncan
Chair in Animal Welfare
University of Guelph



**CSAW News
UPDATE**

• This Newsletter was compiled by Anne Malleau who is being employed part-time by CSAW as Communications Co-ordinator. Anne obtained a BSc in Animal Science from the University of Guelph. She then completed a Masters degree with the research topic of "The importance of rest for young chicks", under the supervision of Dr. Ian Duncan. Anne worked as a research assistant at the University of Georgia for several years before returning to Ontario to work in printing and publishing. While doing this, she returned to the University of Guelph to take a Master of Business Administration in Agribusiness. Anne has, therefore, an excellent grounding in both animal welfare science and business affairs. CSAW is fortunate to have her as co-ordinator.

• We are currently updating and redesigning our website. Please visit us at www.aps.uoguelph.ca/~csaw/ in August.

• Comments on this newsletter and suggestions for future newsletters may be sent to Anne at amalleau@uoguelph.ca

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MISSION STATEMENT

As a group of individuals with diverse interests and views, our primary goal is to promote the welfare of animals through research and education.



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