by Juan Samper, DVM

The last six months have been, perhaps, the busiest ever. Dismantling the practice in Vancouver, moving to Kansas, getting settled in and slowly turning into WILDCATS has kept us hopping. We are happy in Kansas, and I am very excited in my new job, along with the new challenges and the changes in lifestyle. However, I never realized how attached you could get to some of your clients and to the practice until it is actually time to give it up. This has been a very hard and emotional process that still haunts us once in a while. My family and I hope that the hardship of separating ourselves from friends, along with a change in the lifestyle from practice to academia, will be a good decision in the long run that will benefit all of us.

It has been a similar process for the SFT during the last nine months. We are just entering our second year with Walker Management as our association management company. As most of you know these types of transitions are not easy for anyone. We have had some remarkable changes which most of you have already noticed. The expansion and format of the newsletter, and the facelift of the proceedings are major improvements. However, your board of directors also realizes that we have a long ways to go in both the organization of our meetings and other services to our members. We are very aware that the members ARE the organization, and that in order to grow we must provide excellent service. In order to accomplish this, over the past few months the SFT Board of Directors has taken proactive steps in solidifying, even more, our relationship with the American College of Theriogenologists (ACT). We believe that both the ACT and SFT memberships benefit from having this unique relationship to produce first class continuing educational programs. It is because of this tight and unique relationship that both boards have decided to embark in a new venture of conducting more than one symposium a year. This year, Dr. Nicki Parker has organized a top quality canine reproduction program in Vancouver. There will also be a session for technicians that promises to be excellent. In addition, Dr. Jimmy Alexander has not only organized one of the best programs in recent years for the general meeting, but has also established a wet lab on bull breeding soundness in conjunction with the AABP. We are also in the process of finalizing the details for a stallion-wet lab to be conducted in San Diego with the AAEP. If we have your support, and all goes well, we hope to conduct labs for the AAEP and AABP on a yearly basis.

A new feature that you will notice in our meetings, starting in Vancouver, is our SFT?ACT promotional booth. Make sure to stop by, hopefully with a non-member friend, so they can see the benefits of becoming a member.

Next year our meeting will move to Colorado Springs. It promises to be one of the best meetings ever. It will not be in conjunction with any other group, but the program will be enriched by a symposium on Reproductive Toxicology, being organized by Drs. Clynn Wilker and Joanna Ellington. We hope you realize that your board has been working hard to increase the quality of the CE programs, as well as the service to the membership.

I want to finish by thanking you once more for giving me the opportunity to serve as your president. It has been without a doubt the highest honor I have had and I will continue to work in whatever capacity I can, to serve our society. However, we must understand that the Board needs input from all the members. We want to know how you think we can make our association even better, so that in the years to come we all feel proud of belonging to this group.

If you have not been to Vancouver, make sure you come to the meeting. It is without a doubt the prettiest setting for a city in North America, and probably in the world. The quality of the programs and the city itself are worth the trip. See you in September!
Treatment of Dystocia IN OVIPAROUS SNAKES

By Jenny Legg, VM3
College of Veterinary Medicine
University of Missouri-Columbia

Snakes are the reptile most commonly reported for difficulties in oviposition, however this fact may be more due to the increased breeding of these species relative to other reptiles than a predilection for dystocia in snakes. In any case, dystocia is an important clinical problem in breeding snakes. Many factors may be involved in the development of dystocia, but the most common causes tend to be related to husbandry—temperature during gestation, photoperiod, diet, lack of a quiet, secluded area for egg-laying, etc. Other causes include lack of exercise (poor muscle tone), poor conformation of the snake pelvis, and abnormalities in egg shape.

Diagnosis of dystocia in snakes can be difficult. Snakes can tolerate dystocia for prolonged periods of time without any change in behavior. In addition, it is difficult to predict when the gestation period becomes prolonged as some snakes mate over a course of weeks (cannot tell when fertilization took place), some females retain sperm for later fertilization, plus gestation length can be temperature dependent. The best scenario in which to make a diagnosis of dystocia is a case in which the snake had passed several eggs earlier in the gestation period, has evidence of more eggs in the abdomen, and sufficient time has passed such that she should have completed oviposition. In most snakes, the additional eggs can be palpated through the body wall, however in large-bodied snakes, such as pythons, demonstration of additional eggs may have to be accomplished through ultrasound, radiography (especially air-contrast), or other techniques.

Once a diagnosis of dystocia is decided upon, manual manipulation may be the best initial approach to extract eggs in a snake dystocia that has proceeded for less than 48 hours. It is especially effective when a small number of eggs are present in the caudal portion of the genital tract and the duration of dystocia has been short. When the time of a dystocia lengthens, the mucosa of the oviduct becomes dehydrated as the eggs absorb the moisture. Oviductal perforation is of increasing concern if a manual technique is employed when the oviduct is dehydrated or adherent to the eggs. This technique is contraindicated if the snake has previously received intramuscular injections of oxytocin as the chance for rupture is also increased. To perform the manual technique, the cloaca and oviducts should be gently lubricated. If the size of the snake permits, a vaginal speculum may be inserted into the cloaca to permit visualization of the right and left openings of the oviduct. The eggs should then be massaged caudally, exerting digital pressure through the body wall. If the eggs are responsive to this technique, they should begin moving toward the cloaca where, upon visualization, can be extracted with forceps. If the eggs resist this technique, they should not be forced and one of the following techniques should be performed otherwise the oviduct may rupture.

If a manipulative technique is unsuccessful or contraindicated, chemical therapy may be indicated. Mammalian oxytocin has been proven to induce egg-laying in reptiles, although an endogenous role in oviposition has not been determined. In cases of dystocia, oxytocin alone does not seem to have any great effect. When oxytocin is paired with a calcium solution, much better success is reported. In mammals, the oviduct muscles can become less responsive to pituitary hormones in the face of a calcium deficiency. However, in snakes, the measured blood calcium level can be within normal limits, yet the oviduct will not respond to an injection of oxytocin without a concurrent injection of calcium solution. Snakes, a dose of 1.0 to 10.0 IU/kg of oxytocin has achieved reasonable results. High doses may create tetanic contractions in the oviduct, resulting in egg stasis instead of passage and increasing the possibility of oviductal rupture. After receiving intramuscular injections of oxytocin and calcium solution (both calcium lactate and calcium borogluconate have been used), the snake should be placed in a quiet, warm (31°C) environment suitable for egg-laying overnight. If the snake responds to this treatment, it should pass at least one egg within 24 hours. A repeat treatment may be performed if all the eggs are not passed within a reasonable amount of time. In addition, this treatment may be combined with the following technique of ovicentesis to increase the chance of success.

Percutaneous ovicentesis is indicated in cases where the size of the egg is determined to be larger than the size of the opening into the cloaca. Egg enlargement occurs when the egg becomes non-viable and begins to decompose, a likely outcome in cases of prolonged dystocia. The site for ovicentesis is prepared to decrease the risk of infection and the egg is isolated with the fingers. An 18 gauge needle with syringe is directed between scales, through the skin and into the egg, avoiding important structures such as the ventral abdominal vein. The contents of the egg are then aspirated into the syringe. This is repeated for each egg. After all the eggs have been aspirated, a dose of oxytocin/calcium may be needed to move the remains out the cloaca. Occasionally, surgery is still required to remove the eggs before they leak yolk into the abdomen, causing a yolk peritonitis. This technique is unsuccessful in cases where the egg contents have become caseated and is unwise in cases where risk of infection is high.

When all the above methods have failed or the dystocia has gone on long enough that damage to the reproductive tract is suspected, surgical intervention is indicated. Snakes do not usually eat while they are generating eggs, so fasting is not usually required prior to surgery to relieve dystocia. A variety of pre-anesthetic agents, injectable anesthetics, and inhalant anesthetics may be used in snakes. It should be noted that snakes breathe through voluntary muscle contractions and ideally should be ventilated during anesthesia. Snakes are relatively easy to intubate due to the position of the glottis and thus inhalant anesthetic is an excellent option. Isoflurane is generally accepted to be the first choice in such a case, especially with debilitated patients, but other choices are available. Anesthetic depth can be monitored by righting, tail pinching,
A new informational website for the veterinary profession is now available on-line. The IVIS website, www.ivis.org, provides free access to original, electronic reviews, updates, and other books on a wide variety of veterinary topics. IVIS publications aspire to the same high quality standards as academic textbooks. The IVIS e-books are developed by editors following submission of book proposals, proposals are reviewed by the editorial board, and approval is based on credentials and expertise. All manuscripts are written specifically for the IVIS website by authors selected by the editor(s) of each book and reviewed by the editor(s) before publication. Today, the IVIS library includes 26 e-books in the Recent Advances in Veterinary Medicine collection and three e-books in the IVIS Monograph and Textbook collection, for a total of more than 330 original chapters. The IVIS library covers a wide variety of species and disciplines. In addition, the IVIS website is host to a variety of proceedings, manuals and short-course lecture notes, as well as extensive lists of interactive, educational websites in veterinary medicine organized by topic and a calendar of veterinary meetings, short-courses and continuing education conferences.

In the area of reproduction, the IVIS Recent Advances Library offers e-books on Equine Theriogenology by B. Ball (Ed.); Topics in Bull Fertility by P. Chenoweth (Ed.); Yak Reproduction by X.X. Zhao and R.C. Zhang (Eds.); Small Animal Reproduction by P.W. Concannon, G. England and J. Verstegen (Eds.); Camelid Reproduction by J.A. Skidmore and G. Adams (Eds.) and Ovine Reproduction by B. Buckrell and J. Hill (Eds.). Proposals for additional titles can be submitted by email to info@ivis.org.

The IVIS (International Veterinary Information Service) is a New York not-for-profit organization created to provide clinically relevant, up-to-date information to veterinary practitioners, veterinary students, academic clinicians and researchers in the animal health care sector worldwide using the Internet. IVIS was developed by Faculty in several veterinary colleges and is not associated with any University or Veterinary College. IVIS acquires its financial support through private, corporate and government sponsorship.

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**Treatment of Dystocia IN OVIPAROUS SNAKES continued...**

and tongue withdrawal reflexes as well as watching the heart rate through the ventral body wall.

Once the patient is anesthetized the area of incision is prepped and draped in the standard manner for reptiles, keeping in mind the rather lengthy nature of the reproductive tract in snakes. Several incisions may need to be made to access all portions of the tract. The incision may be ventral, paramedian, or lateral but should be made between scales to allow for speedier healing of the incision site. Care should also be taken not to lacerate the large vein located in the center of the ventral surface. A lateral incision is recommended in snakes that move in a rectilinear fashion (pythons and large vipers) as the propulsive muscles that attach to the ventral scales in these species could increase the stress on the sutures.

Once the incision is made, the muscle layer and coelomic fat bodies should be bluntly dissected through and the oviducts exposed. The oviduct is exteriorized as much as possible, but multiple incisions into the organ are usually necessary to reach all the eggs. In the best scenario, the oviductal tissue is fine and friable and should be handled with extreme caution. In worst cases, instead of a salpingotomy (or multiple salpingotomies), a salpingectomy or ovarioalbalpinectomy may need to be performed depending on the state of the reproductive tract. After the eggs are removed, the oviduct should be sutured with a fine, long-lasting, absorbable suture. Ophthalmic or other fine surgical instruments may prove useful in handling the delicate tissue.

The peritoneum, muscle layer, and skin are closed in a standard manner for reptiles. In cases of dystocia in oviparous snakes, the clinician has several options for treatment and can be tailored to adequately meet both the needs of the patient and the needs of the client. Each technique has its potential problems, so options should be considered with that risk in mind. Overall, the future reproductive ability of these snakes depends on the amount of damage the reproductive tract receives, but on the whole, if one of the oviducts remains intact and functional, the prognosis for future reproduction is favorable.

**References**

Evaluation of Sperm Motility in Bull Breeding Soundness Evaluations

By Dr. Albert Barth, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, SK S7N 5B4

For many decades, routine semen evaluations have included an evaluation of numbers of normal, viable sperm in an ejaculate, or in an insemination dose. Measurements included volume, concentration, sperm viability (motility and percentage of sperm staining alive), and sperm morphology. Early workers rated motility based on the vigor of gross motion and the percentage of progressively motile sperm. For example, Swanson and Herman, (1944), rated motility on a scale of 0 to 5 which included both gross motility and the percentage of progressively motile sperm (1). Prebreeding tests of bull breeding soundness began in North America with the efforts of Colorado workers in the early 1950’s. It appears that, initially, sperm viability assessments included an estimate of the percentage of progressively motile sperm. Semen samples were examined under controlled temperatures and given numerical ratings for concentration, motility and percent alive by vital staining (2). However, it appears that an estimate of the percentage of progressively motile sperm was soon discontinued. In a bull breeding soundness evaluation “workbook” published in 1956 in the Journal of the Rocky Mountain Society for the Study of Breeding Soundness (RMSSBS), individual progressive motility was not used to assess sperm viability (3). Rather, the degree of sperm vigor was assessed. Degree of vigor was said to be composed of two elements of vitality, the degree of vitality of the individual sperm as expressed by their rate of progression and the cumulative effect of this individual vitality of progression upon the mass. In addition, an estimate of the percentage of live sperm was made using vital staining. The semen traits of degree of vigor, concentration, percent alive and morphology were rated as very good, good, fair, and poor, and a point system for each rating was given. The American Society for the study of Breeding Soundness (AVSSBS) which developed out of the RMSSBS adopted this method of scoring semen and the method stayed in use until 1976.

In 1975, the AVSSBS was renamed the Society for Theriogenology (SFT) which promoted a revised method for bull breeding soundness evaluation (BSE) (4). The revised method discontinued scoring concentration and % staining alive as studies had shown these to be poorly repeatable (5). The prior AVSSBS criteria for motility remained, but the importance of motility was reduced by lowering the number points assigned out of 100.

The latest revisions made to the method of bull BSE by the SFT in 1992 further reduced the importance of sperm motility to the outcome of bull breeding soundness classification. The reduced emphasis on the importance of sperm motility evaluation was primarily due to the difficulty of controlling laboratory conditions in the field which are necessary for accuracy and repeatability in motility measurements (6). In addition, there is some evidence that poor motility in the presence of good morphology was not associated with reduced fertility (7). However, other studies have concluded that sperm motility is significantly correlated to bull fertility (8-12). With the frequent difficulty of obtaining adequate laboratory conditions for motility measurement in the field and the uncertainty of the correlation of sperm motility to fertility, one might question the usefulness of motility assessments in bull BSes.

It seems that there has been a steady reduction in the number of semen traits assessed in bull BSes since the work done by Colorado workers 50 years ago. The first casualty was the percentage of progressively motile sperm, presumably because field conditions, and the equipment of the day, were inadequate. Then evaluation of concentration and the percentage of sperm staining alive were discontinued due to a lack of repeatability of measurements. Now the value of a motility assessment may be in question. If motility is no longer assessed, only sperm morphology will remain as a measurement of semen quality. Scrotal circumference is well correlated to sperm output in young bulls, but not in bulls beyond 4 or 5 years of age (13), therefore in this regard, it’s usefulness might be questioned. Scrotal circumference is highly correlated to age of onset of puberty (14) and for this reason it would be worth selecting for. However, the present SFT method of bull BSE does not encourage selection for larger testicle size. Could the repeatability of scrotal circumference measurement, especially under field conditions also be questioned? And what about the repeatability of sperm morphology counts between laboratories? The author has conducted seven BSE workshops in the USA and Canada, where practitioners brought along their own microscopes. There was a great deal of variation in the quality of microscopes in use. There are differences in the care and expertise in preparation of stained semen smears and there are differences in the methods and expertise by which sperm morphology is interpreted. Indeed, there appears to be considerable problems in the repeatability of bull BSE classifications among veterinarians. The line of reasoning that suggests an evaluation of sperm motility is unimportant would also lead to the suggestion that an evaluation bull breeding soundness is unimportant.

The artificial insemination industry has struggled with similar problems related to semen evaluation. There has been variability among laboratories, lack of repeatability of results, and uncertainty of correlations of various semen tests with fertility (15). A common reason for experiments showing poor correlations between tests of semen quality and fertility has been insufficient variance in the quality traits under assessment. Salisbury pointed out that as the quality of semen increases, the resultant fertility increases until the highest fertility potential of the female population is reached; further increases in semen quality or sperm dose would not result in any further increase in fertility (16). Indeed, in some experiments, the “low quality” semen that was compared with “good” quality semen had actually met the minimum quality requirements of the AI center (17). Linford et al, demonstrated the importance of using semen with large differences in quality in order to demonstrate correlations between laboratory tests and fertility (17). When frozen semen from bulls with relatively low variation in fertility was used, correlations between semen quality tests and fertility were low. However, correlations between semen quality tests and fertility were highly
significant when frozen semen with a larger variance in quality was used. Linford’s study also showed that the best correlations with fertility could be achieved by a combination of semen tests. A similar conclusion was reached in another study involving 14 sperm parameters assessed retrospectively in 22 Swedish Red and White bulls with a known fertility difference of ≥28 units in 56d-NRRs after AI (18). Similarly, individual components of the BSE may correlate poorly with pregnancy rates, whereas a combination of these components which determine the BSE classification, may correlate well with pregnancy rates (19). This would suggest that the number of semen quality traits used to determine the BSE classification should not be reduced.

One would expect high correlations between various semen tests and pregnancy rates after natural service if the worst bulls were compared to the best bulls, if bull to female ratios were high and if first service pregnancy rates were measured rather than pregnancy rates at the end of the breeding season. These types of experiments are very costly and are seldom done, however, naturally occurring clinical cases bear out the validity of this concept (9,20,21). In reports of experiments resulting in poor correlations for semen traits and fertility, bull to female ratios often were low and the semen quality traits of satisfactory bulls with lower semen trait values were compared to satisfactory bulls with higher semen trait values, or satisfactory bulls were compared to questionable bulls, but not to unsatisfactory bulls (22,23). Fluctuations in semen quality between the time of semen evaluation and the time of the experimental period may also account for low correlations between semen tests and fertility (24).

With fertility being the most important economic factor to profitability of beef herds (25-27), cow-calf producers should be interested in using only highly fertile bulls. In view of the immense importance of fertility to profitability, the most important period of the year is the first 3 weeks of the breeding season. If bull BSEs can not distinguish between highly fertile bulls and bulls of questionable or unsatisfactory breeding soundness, then they are of no value to the producer. However, there is considerable evidence that bull BSEs do distinguish between highly fertile bulls and bulls at risk for infertility (8,10,11,12,19,20,21,28,29,30). There may be insufficient experimental evidence to validate some tests of semen quality, but there is also insufficient evidence that the tests lack usefulness. Therefore, it would likely be wise to measure and record all of the semen traits measured by the early Colorado workers. For example, consider the following semen traits for which measurement has been discontinued, or is in jeopardy of being discontinued:

**Concentration and Volume:**

Usually a concentrated semen sample can be collected from sexually rested bulls with normal testicular function, whereas poorly concentrated samples are often associated with severe disturbances of spermatogenesis, and testicular degeneration. Obtaining a concentrated semen sample gives some assurance that the bull is capable of delivering adequate sperm numbers to cows during natural service. The amount of concentrated semen that can be collected by electroejaculation is also important in the diagnosis of sperm accumulation in the cauda epididymides and ampullae (21). In addition we have observed a case of infertility in a 2-year-old Hereford bull that appeared to be due to an inability to produce concentrated semen. In that case, semen samples were dilute when collected by electroejaculation as well as by artificial vagina. The bull had a scrotal circumference of 36 cm, normal cauda epididymides, ≥23 days of sexual rest, and satisfactory sperm morphology. In other cases involving yearling bulls, low fertility appeared to be due to poor semen concentration despite adequate testicle size and satisfactory sperm morphology.

**Percentage of sperm staining alive and sperm motility:**

In a recent retrospective study of 2110 Bos taurus beef bulls evaluated for breeding soundness at Western College of Veterinary Medicine, estimates of the percentage of progressively motile sperm (% motile) and the percentage of sperm that did not take up eosin stain in eosin-nigrosin stained semen smears (% alive) were available for 1722 cases (submitted for publication). Over all cases, regardless of semen quality, the % motile and % alive were highly correlated (r =0.84, P <0.0001). However, relying on only one test of sperm viability could lead to an incorrect BSE classification. For example, occasionally, semen smear staining problems result in a high proportion of sperm with eosin uptake even though there was a high percentage of progressively motile sperm. On the other hand we have observed several cases in which most sperm stained alive and had normal tails, but motility was poor or absent. A determination of both the percentage of sperm staining alive and sperm motility is also important in the diagnosis of sperm accumulation in the cauda epididymides and ampullae (21). This indicates that measuring two sperm viability traits is superior to measuring only one, or perhaps none. In the same study only 3.5% (46/1307) of bulls having ≥70% morphologically normal sperm had less than 60% progressively motile sperm. This indicates that when semen is handled under optimal laboratory conditions, a very high percentage of bulls with good sperm morphology will have a least 60% progressively motile sperm. Of 46 cases with less than 60% progressively motile sperm, 22 bulls were rated as satisfactory potential breeders possibly because the percentage of sperm staining alive was >60%. Twenty-four of these cases were rated as questionable because of low sperm viability, or because of a high percentage of sperm tail defects.

The low standard (30%) for sperm motility in the present SFT method of bull BSE sets the bar far too low for bulls collected under good conditions. The semen quality of bulls collected under suboptimal conditions should not set the standard for all bulls. If suboptimal conditions are unavoidable (and bull BSE is not an emergency procedure), allowances can be made for the poor conditions rather than starting with a low standard. Repeatability of semen trait assessments will depend primarily on differences in expertise among evaluators and in the effort to control inclement field conditions. It is likely that acquisition of expertise and good laboratory conditions under field conditions are achievable if there is a willingness to make the effort. For example, most producers have a stock trailer that can be placed near the bull restraint facilities to serve as a temporary shelter for a laboratory set up.

Reducing the emphasis on, or eliminating, the measurement of certain semen traits is not clearly justifiable based on the scientific evidence available. Furthermore, a de-emphasis of the value of measuring certain semen traits because of the effect of field conditions, or difficulties in obtaining repeatable measurements, may actually discourage the careful handling and evaluation of semen and the careful conduct of the entire BSE. The SFT must continue to emphasize the importance of careful

*continued on page 12*
The annual conference of the Society for Theriogenology and The American College of Theriogenologists will start with an evening of scientific abstracts. This session will be held on Wednesday, 12th September from 7:00 pm through 9:00 pm. The Harvet and Veterinary Concepts companies are once again sponsoring the evening. They have graciously donated funds to support a Happy Hour which will follow the abstract session. Free food and a cash bar (perhaps with free drink tickets) will be set-up at the back of the room. Once the abstracts have finished at 9:00 pm all registered members are encouraged to socialize with colleagues and perhaps ask some informal questions of the eight scientists who have just presented their work.

The abstracts being presented are among the best of the 36 submissions for this year. There is something here for anyone with an interest in reproduction. Topics to be discussed include:

**Cavernosography in Bulls**

**Intracytoplasmic Sperm Injection of Horse Oocytes**

**Endometrial Cytology in Dairy Cows**

**A Sperm Wash Technique to Improve Stallion Sperm Function**

**Use of CIDRs for Estrous Synchronization in Beef Cattle**

**Equine Viral Arteritis in Mares**

**Melengestrol Acetate for Estrous Synchronization in Goats**

**Palpation and Early Embryonic Loss in Cattle**

Please plan on being part of what is becoming an annual tradition. Cutting-edge scientific updates and collegiality - IT’S WHAT OUR ORGANIZATION IS ALL ABOUT!!

Grant Frazer, Scientific Committee Chair, 2001

Register for the 2001 SFT Conference on the web!

www.therio.org

Vancouver, September 14-15, 2001
ARCHBALD Wins Award

Louis F. Archbald, a professor of theriogenology at the UF College of Veterinary Medicine, has won a national award for his commitment to minority veterinary student education.

The American Association of Veterinary Medical Colleges’ committee on multicultural affairs bestows the honor, known as the Iverson Bell Award, every two years in honor of an individual who has demonstrated significant achievement on behalf of minority veterinary students.

Dean Joseph A. DiPietro of the UF College of Veterinary Medicine nominated Archbald for the award. A diplomate in the American College of Theriogenologists, Archbald is associate chair of the UF veterinary school’s department of large animal clinical sciences. He also is the school’s graduate studies coordinator. Archbald has served as director of multicultural and special programs since 1990. He also coordinates graduate studies for the college.

Archbald joined the faculty at UF in 1984, when he was hired as assistant dean for clinical services and chief-of-staff of the Veterinary Medical Teaching Hospital. In addition, he directed the college’s minority program until 1990.

Dr. Iverson Bell practiced small animal medicine in Indiana, lectured at Tuskegee and Purdue Universities and took leadership roles in the National Association for the Advancement of Colored People, and the American Veterinary Medical Association.

"Dr. Archbald has been a wonderful role model, leader, advocate and counselor to minority students, graduate students and post docs throughout his career," DiPietro said.

PLEASE NOTE

The SFT Annual Business Meeting and Luncheon will be held from 11:30 am – 1:30 pm on Thursday, September 13. While open to ALL SFT members, you must register to attend. Please contact the SFT office at 615/244-3060 or visit the Annual Conference registration information on the SFT website at www.therio.org.

IT’S NOT TOO LATE!

You can still register for the SFT Annual Conference & Canine Symposium. Please complete the below registration information and send to the SFT/ACT office. Or you can register on the SFT website at www.therio.org.

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HYATT REGENCY, VANCOUVER, BRITISH COLUMBIA
SEPTEMBER 14-15, 2001

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REGISTRATION FEES

Space in the wetlabs is limited. If your registration is received after the wetlab is full, you will be notified and your name will be placed on a waiting list. after 8/10/01

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PAYMENT INFORMATION

You may register via fax (615/254-7047) if you are paying by Visa or Mastercard. Otherwise, please mail your payment and completed registration form to: SFT Headquarters, 530 Church Street, Suite 700, Nashville, TN 37219. You may also register online at www.therio.org.

Fees are due and payable to SFT only in U.S. Funds drawn on U.S. Banks. Please indicate your method of payment.

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SUMMER 2001 NEWSLETTER – 7
The 138th Annual Session of the HOD met on July 12 & 13, 2001 in Boston, MA. For those of you who never have had the opportunity to attend a session of the HOD, it is a time to see the AVMA leadership at work. While a degree of politicking is inevitable in any such body, the HOD is made up of individuals from across the sphere of veterinary medicine. I have consistently been impressed with the sincerity & passion the delegates and alternates exhibit toward the topics being considered.

The results of resolutions introduced:

RESOLUTION 1: Have the AVMA provide funding to the American Veterinary Medical Foundation (AVMF) for two Congressional Fellowships. This program has proven itself most successful in raising issues of importance to veterinary medicine in congressional offices. Through the work of the Congressional Fellows, veterinary medicine has a higher profile with the citizens to continue their efforts to effect change. Outcome: Approved.

RESOLUTION 2: Requested funding for one Congressional Fellow by the AVMA. Outcome: Upon the passage of Resolution 1, Resolution 2 was withdrawn.


RESOLUTION 4: Structure of AVMA Council on Biologic and Therapeutic Agents: proposed changing the wording of some of the positions from "private practice, predominantly small, food or equine veterinarian" to be designated as private clinical practice. The number of members of COBTA will remain at 10 for the time being. Outcome: Approved.

RESOLUTION 5: Called for the AVMA to develop a strategic plan to better educate the public about the negative impact of the American Association of Veterinary State Boards (AAVSB) proposal on both assessing educational equivalency and maintaining current accreditation standards in the United States. The AAVSB’s Program for the Assessment of Veterinary Education Equivalence (PAVE) is being pushed as an alternative to the AVMA’s Educational Commission for Foreign Veterinary Graduates Program (ECFVG). One of the biggest concerns about PAVE is that veterinarians from non-accredited veterinary schools would be able to practice in the United States upon passing a written exam without any assessment of their clinical skills. The Council on Education (COE) has done a stellar job in maintaining standards and protecting/evaluating the quality and credentials of practicing veterinarians in this country, to the benefit of U.S. citizens. There is no backlog of individuals waiting to take the clinical competency portion of the ECFVG. Outcome: Approved. The AAVSB will be taking its vote on Monday, July 16, 2001 at the Swissotel in Boston. Suggestion: check with your state board of veterinary examiners and demand more information on its vote, where it stood on this matter, information regarding the outcome. President Nave expressed his concern about those who would seek to devalue the worth of our degrees.

RESOLUTION 6: Was to increase the number of annual AVMA Award's from one to one or more. Outcome: Failed.

ELECTION RESULTS
AVMA President-elect: Dr. Joe M. Howell; AVMA Vice President: Dr. Jack O. Walther

I want to thank all of you who willingly put your names into the hat to run for Council positions. Although you ran under the banner of your own state or allied group, your participation will bring extra focus to topics involving theriogenology. For those of you who were successful this time – congratulations! For those who were not successful, please take the experience you have gained from this meeting, watch for the list of available Council positions for 2002 and apply again. We all need your input.

Council on Biologic and Therapeutic Agents (COBTA): Dr. Shawn Blood, private practice, predominantly food animal Council on Education (COE): Dr. H. Fred Troutt, LACS; Dr. William D. Fishback, private equine practice; Dr. L. Kirk Clark, veterinary medical research; Dr. William F. Jackson, private small animal clinical practice. Judicial Council (JC): Dr. Emily A. Walton Council on Public Health and Regulatory Veterinary Medicine (CPHRVM): Drs. Donald H. Lein and Mark D. Starr, public health agencies or the armed forces; Drs. John J. Schlitz and Jan A. Leder, agricultural agencies.

Council on Public Relations (CPR): Dr. Sherry L. Dodson, private practice, predominantly small animal; and Dr. Robert J. Krapfl, member-at-large. Council on Research (COR): Dr. Walter R. Threlfall, veterinary medical research; Dr. Robert W. Potest, private clinical practice. Council on Veterinary Service (CVS): Dr. Ronald E. Gill, private mixed practice, predominantly food animal or equine; Dr. Robert O. Gilbert, academic clinical science.

If you have any questions or concerns, please don't hesitate to drop me a note or e-mail at carleto1@cvm.msu.edu. Thank you again for allowing me to represent you in the HOD.
Genes Regulating Embryonic and Fetal Survival


Embryonic mortality in both farm animals and humans occurs most frequently during the first few weeks after conception. It can be attributed to abnormalities in the earliest developmental processes during embryogenesis that include implantation, maternal recognition of pregnancy, and formation of the placenta and cardiovascular system. The molecular mechanisms that are essential for all of these early processes are being elucidated at a rapid pace using transgenic and gene knockout approaches in mice. Two important general conclusions have emerged from this work. First, placental defects can occur by a number of different molecular mechanisms and can result from defects in the development or function of its trophoblast, mesenchymal or vascular components. Second, placental and cardiovascular functions are intimately linked. Cells of the placenta, for example, produce hormones that have profound effects on maternal and fetal cardiac and vascular function. In addition, development of the two is linked mechanistically through the use of some genes that are essential for development of both. Understanding the molecular basis of these processes should help to address the major limits to the success of embryo transfer, IVF and embryo cloning practices in livestock species.

Calf Removal Improves Conception Rates to the Ovsynch and CO-Synch Protocols.


**Purpose:** Chlormadinone acetate and finasteride are androgen suppressive agents clinically used for benign prostatic hyperplasia, but their mechanism for inducing prostatic atrophy differs. We investigated the effect of these androgen suppressive agents on prostatic histology and apoptosis using the spontaneous canine benign prostatic hyperplasia model. Materials and Methods: Animals were treated with oral chlormadinone acetate or finasteride for 25 weeks. The prostatic volumes were analyzed every 5 weeks. Prostatic androgen and estrogen concentrations, histological composition and apoptosis were determined at the end of treatment. Apoptosis was measured by in situ labeling of 3' hydroxy ends of the DNA breaks using the terminal deoxynucleotidyl transferase-mediated deoxyuridine triphosphate nick end-labeling method. Results: There was a similar volume reduction effect with 0.3 mg/kg chlormadinone acetate daily and 1 mg/kg finasteride daily. Chlormadinone acetate decreased testosterone and dihydrotestosterone, but finasteride decreased only dihydrotestosterone in the prostate gland. The concentration ratio of estradiol-to-total androgen in the prostate was significantly increased in finasteride treated canines. Chlormadinone acetate and finasteride decreased the epithelial and stromal components. The extent of apoptosis observed in the prostate was significantly higher in the chlormadinone acetate group compared to that of the control and finasteride groups. **Conclusions:** Although a similar effect of chlormadinone acetate and finasteride was observed in the induction of prostatic regression and composition of the histological components, the sustained increase in apoptosis was observed only in chlormadinone acetate treated canines. We suggest that different intraprostatic endocrine environments created by chlormadinone acetate or finasteride, which have different intraprostatic testosterone levels and estradiol-to-androgen ratios, may be responsible for the different outcomes in the extent of apoptosis.
Putative Quantitative Trait Locus Affecting Birth Weight on Bovine Chromosome 2.


A genome scan for chromosomal regions influencing birth weight was performed using 151 progeny of a single Hereford x composite bull and 170 microsatellite markers spanning 2.497 morgans on 29 bovine autosomes. A QTL was identified at the telomeric end of bovine chromosome 2 (maximum effect at 114 cM) accounting for approximately 2.8 kg of birth weight or 0.64 residual standard deviations (after adjustment for sex of calf, age of dam, and breed of dam). No significant effect on growth from birth to weaning was detected in this region. The presence of this QTL within a resource herd composed of breeds common to the Northern Great Plains provides an opportunity to initiate marker-assisted selection to reduce birth weight with minimal effect on postnatal growth. Thus, potentially the amount and degree of dystocia can be reduced and the economic loss associated with calving difficulty lessened without compromise of subsequent growth performance. In addition, this finding indicates that significant genetic variation for birth weight (and presumably other production-related traits) exists within herds composed of commercially adapted Bos taurus germplasm.


The aim of this study was to investigate the effect of gonadotrophin-releasing hormone (GnRH) immunisation on mature stallions that had been used for breeding. Four Standardbred stallions were used in the study: 3 experimental animals and 1 control animal. Semen was collected regularly, i.e. twice/week, during the 4 months prior to the experimental period. The stallions were immunised against GnRH, with a GnRH-BSA conjugate. Equimune was used as the adjuvant. The stallions were immunised on 5 occasions, 4 at 2 week intervals, and the fifth 4 weeks after the fourth. Blood samples were taken once a week for analysis of GnRH antibody titre and every third week for testosterone and oestrone sulphate analyses. Semen was collected once a week, and libido and sexual behaviour were observed. Ejaculate volume, sperm concentration, total number of sperm in the ejaculate, sperm motility and sperm morphology were evaluated. Testicular size was measured once a week. At the end of the study, the stallions were castrated, and a histological examination of the testes performed. All immunised stallions produced antibodies against GnRH, and plasma testosterone concentration decreased. However, the effect of immunisation varied between stallions. In 2 of the stallions, high levels of antibodies were found, while in the third, the level was moderate. Four weeks after the first immunisation, a decrease in libido was observed. Two months after the first immunisation, marked changes in semen quality were observed in the 2 stallions with high antibody titres. Fourteen weeks after the first immunisation, the total number of sperm/ejaculate had decreased from >60 to <14%. The dominating abnormalities were abnormal head shapes, proximal cytoplasmic droplets and detached heads. In the third stallion, only slight changes in semen quality were found. No changes were observed in the control stallion. Decreases in testicular size were noted in all of the experimental stallions. Pronounced histological alterations in the testes were observed in 2 of the stallions. It is concluded that the vaccine was effective in stimulating production of GnRH antibodies and in suppressing testicular function and androgen secretion. However, there was an individual variation in the responses among the stallions and, further, libido was not totally suppressed.
Fallow bucks (Dama dama) produce a postcopulatory vocalization (PCV), consisting of an increase in the short-term groaning rate during the first min after mating. In this article, we consider two main hypotheses to assess the possible function of the postcopulatory vocalization. First, the PCV could be directed at females, and used to advertise the current fertility status of the male. Second, the PCV could be directed at males, and used to transmit an intrasexual threat signal. We found that during days when a male gained many matings, his PCVs did not decline, and males with larger intervals between matings did not produce higher PCVs. Lower PCVs were not associated with infertile matings, and for females that mated twice within the same estrus, the PCVs of their first matings were not lower than other PCVs. In addition, higher PCVs were not associated with shorter intervals to a male’s next mating. Thus, there was no evidence to suggest that the PCV was involved in transmitting a signal of fertility assurance, either to females that had mated, or to those that were about to mate. We found that PCVs declined as males reached the end of their mating success, therefore suggesting that PCVs are more likely to be involved in transmitting an intrasexual threat signal related to current condition and/or motivation. We suggest that this signal is probably involved in mate guarding.

Cystic ovarian disease (COD) is one of the most frequently diagnosed gynecological findings in dairy cattle. It causes temporary infertility and is likely to affect reproduction as well as production parameters in cows. The objectives of this study were to investigate the heritability of COD in a Dutch Black and White population and to estimate the genetic and phenotypic relationships with milk production traits. In the data set used, the overall incidence of COD was 7.7% (1204 COD diagnoses in 15,562 lactations). The farm incidence varied between 1.9 and 11.3%. The estimated heritabilities on the underlying and observable scales were 0.102 and 0.087, respectively. The genetic correlations between COD and 305-d milk, fat, and protein yields were 0.345, 0.379, and 0.441, respectively. We concluded that a genetic predisposition for COD exists in Dutch Black and White dairy cattle. The genetic correlations between COD and yield traits indicate that ongoing selection for production will increase the incidence of COD.
Evaluation of Sperm Motility in Bull Breeding Soundness Evaluations

unbiased semen evaluation and encourage the continuing education of veterinarians involved in BSEs.

References
CLINICAL INSTRUCTORSHIP IN FOOD ANIMAL MEDICINE AND SURGERY
Clinical Instructorship in Food Animal Medicine and Surgery: The Veterinary Medical Teaching Hospital, College of Veterinary Medicine, Kansas State University, invites applications for a non-tenure track, limited term appointment as a clinical instructor in Agricultural Practices. This appointment will end March 1, 2002. The assignment will involve primarily, provision of high-quality clinical service and instruction in both in-hospital and ambulatory food animal clinical service. Requirements include a DVM or equivalent degree from an AVMA accredited college and a minimum of 1 year of practice experience. Interested parties should submit a letter of application, curriculum vitae, and names of three references to Dr. Roger Finling, Veterinary Medical Teaching Hospital, Kansas State University, 106 A Mosier Hall, Manhattan, KS 66506-5706. Deadline for applications is August 1, 2001 or until a suitable candidate is found.

PERMANENT, FULL-TIME RESEARCH SCIENTIST
The Southeast Poultry Research Laboratory, has an opening for a Permanent, Full-time Research Scientist responsible for conducting basic and applied research on the physiologic impact, emphasis on endocrinologic, of molting on salmonella enteritidis contamination of chicken eggs. Candidates must be a U.S. citizen and a PhD degree related to the position is preferred. Salary commensurate with experience ($51,927-80,279). For application procedures and forms, contact Dr. Lenell Powers at (706) 564-3029. Applications in response to this advertisement must be marked ARS-X15-1139 and postmarked by August 13, 2001. Mail applications to Dawn McCourt, USDA, ARS, HRD, 5001 Sunnyside Avenue, Beltsville, Maryland 20705-5105. 301-504-1516.

FACULTY POSITION IN LARGE ANIMAL THERIOGENOLOGY
Department of Population Medicine, Ontario Veterinary College University of Guelph Faculty Position in Large Animal Theriogenology: The Department of Population Medicine, Ontario Veterinary College, University of Guelph, is seeking applicants for a tenure-track faculty position in Large Animal Theriogenology as the Assistant or Associate Professor level. The successful applicant will have a DVM degree or equivalent and an advanced degree in Theriogenology or a related field. The applicant will also have attained or be eligible for board certification by the American College of Theriogenologists. Candidates must be eligible for licensure to practice veterinary medicine in the Province of Ontario. Duties will include didactic, clinical and laboratory teaching; will participate in research and contribute to the development of a successful research program that will complement the applicant’s skills in advanced reproductive technologies. Please send a complete curriculum vitae and three references to: Dr. Carl Crible, Chair, Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada N1G 2W1. Fax: (519) 763-8621. Email: crible@uoguelph.ca.

THERIOGENOLOGY RESIDENCY
The Veterinary Medical Teaching Hospital at Kansas State University is currently seeking applicants for a Residency in Theriogenology starting October 1, 2001. The residency will have a major emphasis on equine reproduction but the resident will have ample opportunity to interact with Board certified Theriogenologists in the areas of small and large ruminants and swine reproduction. The resident will participate in the field and hospital cases and will be responsible for teaching veterinary students in lectures and labs. The resident is expected to apply to the KSU graduate school so that at the end of the three year program will earn a Masters degree as well as eligibility for certification in the American College of Theriogenologists. Applicants must possess a DVM degree or equivalent and at least 2 years of some practical experience in equine reproduction. Starting salary is $20,913.00 plus benefits. Screening of applicants will begin on August 1 and continue until the position has been filled. Interested candidates should submit a curriculum vitae, letter of interest clearly stating their professional goals, transcripts and three letters of reference to Dr. Roger Finling, Director, KSU-VMTH, College of Veterinary Medicine, Kansas State University, 106A Mosier Hall, Manhattan, KS 66506-5701. If you have any questions or need further information please contact: Dr. J.C. Samper at 785-532-5700 ext 4196 or by email at jsamper@vet.ksu.edu.

EQUINE REPRODUCTIVE VETERINARIAN
Position available in New Zealand. Required for the Southern breeding season November 1, 2001 - January 31, 2002. Duties involve full range of breeding farm visits and include considerable ovarian and uterine scanning as most mares are breeding to chilled, transported semen. We would prefer the applicant to have experience in embryo transfer. Regular leisure time allowed for visiting the scenic areas of New Zealand & South Island. Please apply to Dr. John Shaw, phone 64 3 3499 946, fax 64 3 3493 000 and e-mail prebbleton.farm@xtra.co.nz.

ASSISTANT STATE VETERINARIAN
(VETERINARIAN II – Grade 22)
$3,101 - $5,390/Month
The Arizona Department of Agriculture has an opening in our Animal Services Division Office of the State. The duties for this position are primarily related to livestock disease control with some time spent supporting the State’s Meat and Poultry Inspection Program. Duties include monitoring compliance with livestock importation requirements; investigation of possible disease epidemics; collection of diagnostic samples for brucellosis, tuberculosis, pseudorabies and other diseases of regulatory concern; assist in the coordination of cooperative State/Federal disease eradication programs; provide assistance to Department of Agriculture Livestock Officers, Livestock Inspectors and practicing veterinarians on livestock disease problems; assist with the investigation of livestock cruelty complaints; inspect fish farms, auctions and feedlots for compliance with state animal health regulations; assist in the training of contract veterinary meat inspectors and provide veterinary expertise at packing plants to determine the wholesomeness of meat and poultry products. Interested individuals need to submit a comprehensive resume and a Resume Supplement SF-501 to: Arizona Department of Agriculture 1688 W. Adams St., Room 405, Phoenix, Arizona 85007; Attn: Human Resources. Resumes must be accompanied by a Resume Supplement SF-501; download from Website www.hr.state.az.us/employment or call (602) 542-5482. For more information call the Arizona Department of Agriculture Human Resources Office at (602) 542-4515.

FULL TIME ASSOCIATE
Full time associate required for 3-person, computerized, exclusively equine practice in Calgary. 30% in-clinic and 70% ambulatory in training/boarding stables and on breeding and hobby farms. Practice very busy in the spring and summer, slow in winter. Prefer person with strong equine background and experience with advanced theriogenology. Starting anytime after July, 2001. Send resume to: Dr. Wayne Burwash, Box 2, Site 29, R.R. # 12, Calgary, AB, T3E-6W3; Tel (403) 242-1913; Fax (403) 242-9361; or Email burwash@telusplanet.net.

THERIOGENOLOGIST
The Department of Farm Animal Health and Resource Management, College of Veterinary Medicine, North Carolina State University seeks applicants for tenure track Assistant Professor of Theriogenology, available as early as Jan 1, 2002. DVM or equivalent is required. Advanced degree, preferably PhD, and Diplomate status in the American College of Theriogenologists are highly desirable. The successful candidate should have documented ability as a clinician, teacher, and scientist; will provide clinical service for several species in a teaching environment; will participate in didactic, clinical and laboratory teaching; will participate in outreach for veterinarians and producers; will establish a collaborative research program. The candidate may bring a species preference to clinical/research activities. North Carolina ranks in the top three states for livestock, poultry, and equine production. Opportunities for collaborative research with a distinguished Faculty and other public/private partners are excellent within the NC Research Triangle. Applicants should submit CV, statement of intent including short/long-term professional goals, and names/addresses of at least three professional references to Dr. James Floyd, Jr., Head, Department of Farm Animal Health & Resource Management, College of Veterinary Medicine, NC State University, 4700 Hillsborough Street, Raleigh, NC 27606, Phone 919-513-6240, Fax 919-513-6464, email: James_Floyd@ncsu.edu. Applications accepted until October 15, 2001 or until the position is filled. NCSU is an AA/EOE.
Nominations are now being sought for the 2002 David E. Bartlett Award, presented annually to a distinguished individual who has made important contributions to the field of theriogenology.

The Award—intended to cement the efforts of the SFT and ACT toward common goals in animal reproduction, to reward and inspire excellence, improve the visibility of theriogenology, and to annually recognize the efforts of SFT’s and ACT’s charter members and diplomats—particularly honors Dr. David E. Bartlett, ACT’s first president. Among his many accomplishments, Dr. Bartlett was responsible for deriving the terms “theriogenology” and “theriogenologist,” and was instrumental in gaining hard-won AVMA recognition for ACT and SFT in 1971.

As is tradition, the 2002 David E. Bartlett Award will be presented at a reception during the conference. The recipient will be notified in advance, allowing family and friends to be on hand. The honoree will address those in attendance at the reception, and will have the option of submitting a contribution to the conference proceedings.

The honoree will receive a $1,000 cash award, an engraved statue of Nandi, and complimentary registration, hotel accommodations and transportation to the 2002 Annual Conference in Colorado Springs, Colorado.

Please submit the accompanying Preliminary Entry Form on the right-hand page and nominate an individual to add to the list of preeminent recipients.

Please be sure to attend the 2001 Conference to see the 2001 David E. Bartlett Award presentation.

### David E. Bartlett Award Recipients

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
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<tbody>
<tr>
<td>1984</td>
<td>Dr. David E. Bartlett</td>
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<tr>
<td>1985</td>
<td>Dr. S.J. Roberts</td>
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<tr>
<td>1986</td>
<td>Dr. Elmer A. Woelffer</td>
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<td>1987</td>
<td>Dr. Raymond Zemjanis</td>
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<td>1988</td>
<td>Dr. Lloyd Faulkner</td>
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<td>1989</td>
<td>Dr. C.J. Bierschwal</td>
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<td>1990</td>
<td>Dr. Les Ball</td>
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<td>Dr. Robert Kenney</td>
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<td>1992</td>
<td>Dr. Victor Shille</td>
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<td>1993</td>
<td>Dr. Robert Hudson</td>
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<td>Dr. Donald Walker</td>
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<td>Dr. A.C. Asbury</td>
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<td>1998</td>
<td>Dr. Borje Gusstafsson</td>
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<td>1999</td>
<td>Dr. Charles E. Martin</td>
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<td>2000</td>
<td>Dr. Shirley Johnson</td>
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Please be sure to attend the 2001 Conference to see the 2001 David E. Bartlett Award Presentation.
Nominee: ___________________________________________

Full Address: ______________________________________

_________________________________________________

Phone: ____________________________________________

_________________________________________________

Fax: ______________________________________________

_________________________________________________

Email: _____________________________________________

Short Description of nominee’s qualifications for this award:

____________________________________________________________________________________________________

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Nominated by: ______________________________________

Full Address: _______________________________________

_________________________________________________

Phone: ____________________________________________

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Fax: ______________________________________________

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Email: _____________________________________________

Please mail your form by March 15, 2002 to:
Society for Theriogenology
Re: Bartlett Award
200 4th Avenue North, Suite 900, Nashville, TN  37219

If your nominee is selected as a finalist by the selection committee, you will receive a final entry form to assist you in gathering the appropriate documentation.
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