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EDITORIAL

The present issue provides usual news and informations amongst which the General Assembly of our international association, where the future of B.E.D.I.M. has been discussed.

The concept of minilivestock has moved forward in the official spheres of Cote d'Ivoire, and it is expected that the same will happen in other countries. Our readers could and should inform us on the situation they encounter at home.

In a more technical field, it is worth pinpointing the fact that frogs draw more and more attention on one hand and on the other hand that the use of maggots in animal and human therapy seems gaining interest (see Thomas's article in the Survey of the Literature, part of this issue, under "Insects" heading).

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Le présent numéro contient comme d'habitude des informations générales sur le mini-élevage et des nouvelles de l'association. Parmi ces dernières, la tenue de l'Assemblée Générale est évoquée; l'avenir de l'association internationale B.E.D.I.M. y a notamment été discuté.

Le concept de mini-élevage a dorénavant été reconnu par les sphères officielles de Côte d'Ivoire. Nos lecteurs pourraient et devraient nous informer de la situation qui prévaut dans leur propre pays.

Sur un plan plus technique, il vaut la peine de faire remarquer l'intérêt croissant porté pour les grenouilles d'une part, et d'autre part sur l'usage d'asticots en médecine vétérinaire et humaine auquel on semble accorder plus d'intérêt (voir l'article de Thomas dans la partie Survey of the Literature de ce numéro, rubrique "Insects").

NOUVELLES DE L'ASSOCIATION

Depuis la sortie du numéro précédent, le Conseil d'Administration de l'association s'est réuni le 18 mars 2000 à la fois pour la gestion des affaires courantes et pour la préparation de l'Assemblée Générale Statutaire. Selon la loi belge du 25.10.1919 qui régit les associations internationales, une Assemblée doit se tenir tous les deux ans pour approuver les comptes, décider du montant des cotisations, procéder aux élections d'administrateurs et discuter d'autres données importantes.

Au cours de cette Assemblée du samedi 13 mai 2000, les comptes ont été approuvés. Le montant de la cotisation de base annuelle a été maintenu, mais les références sont dorénavant exprimées en EUROS et non plus en francs belges. Les membres effectifs doivent donc payer chaque année 15 EUR, les membres adhérents 3 EUR et les membres des pays en développement 2 EUR; ces sommes peuvent être payées pour plusieurs années afin de réduire les frais fixes. Les comptes bancaires utilisables sont dorénavant mentionnés en page 3 de couverture.

Un administrateur (Mme Micheline POPULER-DEHOY) était démissionnaire. Les autres administrateurs avaient mis leurs mandats à la disposition de l'Assemblée, qui les a ré-élus (Mme Marie-José DESMET-WILLEMS, MM. André GUISSART, Jacques HARDOUIN et Eric THYS). Mme Apolena ROUBINKOVA, seule candidate, a été élue. Après la clôture de l'A.G., les administrateurs élus se sont réunis et ont désigné comme Président M. J. Hardouin, comme Secrétaire M. E. Thys et comme Trésorière Mme M.-J. Desmet.

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Le Président a communiqué à l'Assemblée sa décision, pour des raisons personnelles liées en grande partie à son âge (70 ans en 1999), de cesser ses activités à B.E.D.I.M. après avoir pendant deux ans essayé vainement de trouver une formule permettant d'assurer son remplacement ainsi que le maintien des activités de B.E.D.I.M. Aucun organisme susceptible de poursuivre ce qui est mené depuis plus de dix ans en faveur du mini-élevage tropical n'a en effet pu être identifié. Toutefois, des suggestions ont été communiquées à l'Assemblée, à la suite du mandat donné par le Conseil d'Administration du 18 mars 2000 au Président J. Hardouin pour rencontrer la direction du CIRAD-EMVT (Institut d'Elevage et de Médecine Vétérinaire Tropicale) de Montpellier (France) et lui proposer de reprendre les réalisations de B.E.D.I.M. Une réunion a eu lieu à Montpellier le jeudi 3 mai 2000 au cours de laquelle des propositions ont été formulées au CIRAD-EMVT. Un accueil favorable et attentif a caractérisé cette rencontre, qui s'est soldée par un accord de principe pour se revoir et examiner de commun accord ce qui pourrait être envisagé. Telle était la situation au début du mois de juin 2000. L'avenir n'est pas totalement bloqué, semble-t-il.

NEWS OF THE ASSOCIATION

Since the last issue of our Bulletin, the Board of Trustees of the association met on 18 March 2000 for routine work and to prepare the General Assembly which has to be held every second year according to the Belgian law. It is also the official body to accept the accounts, decide on the annual fee, elect trustees and discuss any important question for the association.

The accounts have so been approved on Saturday 13 May 2000. The reference amount of the annual fee has not been modified, but it will be expressed as from now in EUROS and no more in Belgian Francs. It is equal to 15 EUR/year for effective members, 3 EUR/year for adherent members and 2 EUR/year for members in developing countries. In order to reduce the relative banking costs, payments can be made for several years. Details are given in cover page 3.

One trustee (Mrs Micheline POPULER-DEHOY) resigned, and the others had put their mandate at the disposal of the assembly, which re-elected them (Mrs Marie-José DESMET-WILLEMS, MM. André GUISSART, Jacques HARDOUIN and Eric THYS). Mrs Apolena ROUBINKOVA has been elected. The elected trustees met after the Assembly and decided to nominate M. J. Hardouin as President, M. E. Thys as Secretary and Mrs J. Desmet as Treasury.

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The President informed the Assembly that he decided for personal reasons, mainly linked with his age (70 years in 1999), to stop his activities at B.E.D.I.M. after two years unsuccessful lobbying aiming at a solution to hand over his present involvement and all the B.E.D.I.M. activities (advices to private people and Bulletin). No institution could be identified to carry on what is implemented for more than ten years for tropical minilivestock. In March 2000, the Board of Trustees mandated its President J. Hardouin to meet the Directorate of CIRAD-EMVT (Institut d'Élevage et de Médecine Vétérinaire Tropicale) at Montpellier (France) and propose the handing over to that institution of the B.E.D.I.M. activities. During a meeting which took place at Montpellier on 3 May 2000, both parties described their activities, possibilities and expectations; they finally concluded in a very positive atmosphere that internal discussions had to take place in each side before a second meeting is organized. At mid year 2000, the future of B.E.D.I.M. seems slightly lighter.

ACTUALITÉS

Vidéocassette

Une négligence involontaire, mais très regrettable, dans les informations communiquées dans les bulletins précédents doit être corrigée dans celui-ci, car le Dr E. Thys (actuellement rattaché au Département Vétérinaire de l'Institut de Médecine Tropicale Prince Léopold d'Anvers-Belgique) a régulièrement présenté et commenté cette cassette aux étudiants de 3^e cycle qui suivent dans cet établissement le Cours International de Production et Santé Animales Tropicales C.I.P.S.A.T. Les élevages non conventionnels font en effet partie du module consacré à la "Problématique de l'élevage sous les tropiques". Le Dr E. Thys, secrétaire bénévole de l'association B.E.D.I.M., est depuis longtemps un défenseur convaincu du mini-élevage. Il peut être touché directement à l'adresse suivante: ethys@itg.be ou ethysj.magis@worldonline.be

A l'initiative de BEDIM et surtout de Mme M.-J. Desmet qui a assuré l'emballage et l'adressage, la Commission Européenne a envoyé gratuitement un exemplaire de la vidéocassette à des bibliothèques d'institutions dans la limite de ce qui était disponible dans chaque version (français, anglais, espagnol).

Découverte du mini-élevage

Un jeune diplômé sans emploi originaire de la République du Congo (Brazzaville), zootechnicien de formation, a écrit au Secrétariat Technique de BEDIM comme beaucoup d'autres correspondants occasionnels. Sa lettre est cependant très particulière car elle fait état des trois guerres civiles qui ont ravagé son pays au cours de ces dernières années. Une des conséquences de cette situation a été la nécessité pour lui et pour d'autres de s'enfuir en forêt pour se mettre à l'abri! A ce propos, il écrit que "en contact direct avec la nature pendant 12 mois", il y a observé des choses dont il ignorait l'importance car "ce que j'y ai vu m'a beaucoup impressionné", et notamment l'importance alimentaire pour l'homme des escargots géants locaux. Maintenant que la vie est redevenue plus calme, il voudrait se lancer dans l'élevage des escargots africains, car "ceux-ci sont très braconnés par les peuples de l'Afrique de l'Ouest qui sont maintenant à Brazzaville et qui se livrent à un braconnage intense".

Le Mini-élevage en Côte d'Ivoire

Notre ami Daniel Zongo, Professeur à l'Ecole Supérieur d'Agronomie en Côte d'Ivoire, communique trois informations intéressantes liées à des interventions de sa part.

a) Au 2^e Salon de l'Agriculture et des Ressources Animales S.A.R.A. d'Abidjan, l'Agence Nationale d'Appui au Développement Rural ANADER a présenté dans son stand des escargots et des grenouilles, tandis que des particuliers et des associations d'achatiniculteurs et d'aulacodiculteurs du centre du pays participaient également à ce salon.

NEWS UP-DATE

Video-cassette

An involuntary omission in the information mentioned in the previous Bulletins has to be amended in this one. Dr E. Thys (presently attached to the Veterinary Department of the Prince Leopold Institute of Tropical Medicine at Antwerp-Belgium) has several times presented and commented the cassette to the post-graduate students who follow there the International Course on Tropical Animal Production and Health C.I.P.S.A.T. Unconventional breeding is part indeed of the module as "Problematics of animal breeding in the tropics". Dr E. Thys, benevolent Secretary of our association, is since many years a convinced protagonist of the minilivestock. He can be contacted directly through his E-mail: ethys@itq.be or ethys.maqis@worldonline.be

Following a suggestion made by BEDIM, and the active assistance of Mrs J. Desmet (Association Treasury) who realized packing and labelling, the European Commission sent for free of charge a copy of the video-cassette to institutions libraries within the limits of availability in the respective versions (English, French, Spanish).

Minilivestock discovery

An unemployed young man in Congo (Brazzaville), recently graduated in animal production, wrote to the BEDIM technical Secretariat like many other readers of our Bulletin. His letter was however very peculiar as it mentions the three civil wars which happened during these last years in his country. One of the consequences of that situation had been that he and many others had to escape in the forest to avoid their killing! During that period, he wrote "he was in direct contact with the nature during 12 months", observed many things the importance of which he ignored previously, and has "been very impressed by what has been seen, namely the importance for men of the local giant snails as food". Now, life becoming slightly softer, he would like starting snail production, as "they are heavily poached by West-African people living today at Brazzaville".

Minilivestock in Côte d'Ivoire

Our friend Daniel Zongo, Professor at the Ecole Supérieure d'Agronomie in Côte d'Ivoire, mentions in a letter three interesting situations related to/with his personal role.

a) At the Second Agriculture and Animal Resources Show at Abidjan, the National Agency to Support Rural Development (ANADER) presented in its stand snails and frogs, meanwhile private producers and associations involved in grass-cutter breeding and in snail breeding from the Centre of the country were also present at the show.

b) Au moins une coopérative de femmes dans le Centre Ouest a été créée, après formation des membres; elle dispose d'une unité achatinicole qui évolue très favorablement.

c) Un additif au Programme Spécial de Sécurité Alimentaire national mentionne dorénavant des petits projets sur l'agriculture familiale (volailles et pintades), les achatines, l'aulacodiculture, l'apiculture, les lapins, des associations lapins-maraîchage et canards-pisciculture.

Troisième atelier sur le Mini-élevage dans la SADC, 1999, Harare (Zimbabwe)

Des précisions sont fournies, dans une de ses dernières lettres, par Ir Théodore Munyuli Bin Mushambangi (Labo zoologie agricole; CRSN-Lwiro, D.S. Bukavu [Kivu], R.D. Congo c/o Petit Séminaire de Mugeru, P.O. Box 02 Cyangugu, Rwanda; e-mail: infobukavu@bushnet.net) qui a assisté à ce séminaire au Zimbabwe. Les titres des exposés qui y ont été présentés font apparaître de l'intérêt pour le mini-élevage en Afrique de l'Est et en Afrique Australe. Jusqu'à présent, toutes les tentatives lancées par BEDIM étaient restées sans succès ni réponse. Les choses semblent changer. Le Dr Ferran Jori, membre fondateur, a également noté un intérêt pour les rongeurs chez les scientifiques d'Afrique du Sud. On trouvera ci-dessous (voir aussi sous le texte en anglais) les informations concernant les conférences liées au mini-élevage; celles qui concernaient la grande faune classique de l'élevage en jardins zoologiques ne sont pas reprises. Aux dernières nouvelles, les actes de ce séminaire ne sont pas encore disponibles.

Peter G. Ryan;

University of Cape Town, Faculty of Sciences, Zoology Department
Rondebosch 7702, South Africa.

"Importance of insects in the nutrition of local communities of Soweto, South Africa Republic".

Loung L.P.K.;

Institut Pasteur d'Antananarivo
P.O. Box 341 Antananarivo, Madagascar.

"Rongeurs nuisibles aux cultures et rongeurs consommés par les paysans au Madagascar".

Kathurina and Agnes L.M.;

National Museums of Kenya, birds division
P.O. Box 40658, Nairobi, Kenya.

"Birds rearing and their use by local communities in Eastern of Kenya: the case of Francolin (*Francolinus ater*, *F. rufopictus*)".

b) At least one women cooperative in the Centre-West, created after training of its members, owns now a snail (*Achatines*) production unit which is in regular progress.

c) An addendum to the national Programme Spécial de Sécurité Alimentaire mentions as from now small projects on back-yard poultry production (hens and guinea fowls), achatines, grass-cutters, bees, rabbits and integrated farming rabbits/vegetables and ducks/fishes.

Third workshop on Minilivestock in SADC, 1999, Harare (Zimbabwe)

Details on this seminar are provided by Ir Théodore Munyuli Bin Mushambanyi (Labo Zoologie agricole; CRSN – Lwiro, D.S. Bukavu [Kivu], R.D. Congo c/o Petit Séminaire de Mugeru, P.O. Box 02 Cyangugu, Rwanda; E-mail: infobukavu@bushnet.net) who attended it. The subjects mentioned in the title of the presentations show interest for minilivestock in East- and South Africa, which is new though many attempts had been undertaken by BEDIM. Things are changing. Dr Ferran Jori, founding member of our association, noticed also interest of South African scientists for rodents. The titles connected to minilivestock are mentioned below (see also text in French); those dealing with classical wildlife or breeding in zoos are not listed. It seems that the Proceedings of this seminar are not available yet.

Dranloo C. T.L.;

Faculty of Veterinary Medicine

Department of wildlife and resource management

Makerere University, P. Box: 10066, kampalo, Uganda

"Preliminary rearing observations of *Cricetomys gambianus* at the Faculty of Veterinary Medicine"

Denash P. and Bareba;

University of Zimbabwe, Animal Science Department, Faculty of Agriculture

P.O. Box: MP 167, Mount Pleasant, Harare, Zimbabwe

"Wild insects as food and source of proteins in southern Zimbabwe"

Garith Daves

Instituto Nacional de Investigacao Agronomica Estacao Agrario de Lichinga;

C.P. 238, Lichinga, Niassa, Mozambique

"Some observations on an experimental domestication of the African pangolin (*Manidae: Manis gigantea*) in Mozambique"

Nyirendi K.L. Peter;

University of Malawi

Bando College of Agriculture, P.O. Box 219, Lilongwe, Malawi.

"Some observations on our experimental domestication of the *Orycteropus afer* (Orycteropodidae) in Malawi"

Séminaire international sur l'élevage intensif de gibier à but alimentaire de Libreville (Gabon)

Le Comité organisateur de ce séminaire a invité M. J. Hardouin pour présenter l'exposé introductif dont le titre fixé était "Les espèces envisageables en élevage intensif de gibier".

Ce séminaire s'est tenu les 23 et 24 mai 2000 et a réuni une vingtaine d'intervenants et une centaine d'auditeurs provenant d'une quinzaine de pays. Des détails seront fournis dans un prochain Bulletin, mais dès à présent on peut reprendre une des recommandations finales:

"Le séminaire souhaite vivement que des efforts notables soient consentis pour développer la communication au sein de la communauté internationale des producteurs et les chercheurs au travers (i) de rencontres périodiques de ce type, (ii) l'activation du réseau d'information via le RANC (Réseau africain d'information et de recherche sur les ressources alimentaires non conventionnelles initié à Addis Abeba en décembre 1996 à l'initiative de la FAO et la CEA), le BEDIM (Bureau d'étude pour la diffusion de l'information en mini-élevage) ou autre dispositif adapté."

Elevage de serpents

Les Bulletins évoquent régulièrement d'autres espèces animales que celles, déjà classiques, qui font l'objet de la revue de la littérature. On a ainsi évoqué les chauve-souris (n° 8/1 & 8/2) qui n'ont pas été retenues car simplement chassées et pas élevées, les iguanes (n° 8/2) et une tortue fluviale en Amazonie (ce n° 9/1).

Il faudra peut-être ajouter l'élevage de serpents qui semble pratiqué au Viêt-Nam, à environ 50 Km d'Hanoi. La chair de l'animal adulte est en effet fort appréciée, mais dans certains cas les œufs sont également consommés. Le grand intérêt ici est qu'il s'agit d'élevage et pas de simple ramassage dans la nature. Des précisions sont attendues.

Les Grenouilles

Le secteur des grenouilles et de la raniculture reste très actif, peut-être parce qu'il est novateur. Il est très regrettable qu'aucun scientifique ou technicien africain actif en la matière n'ait été présent au Séminaire de Libreville en mai malgré les efforts des organisateurs.

Par ailleurs, grâce à l'attention sans faille de Mme A. Roubinkova (Centre de Documentation, Bibliothèque, F.U.S.A.Gembloux, E-mail: roubinkova.a@fsagx.ac.be), on peut signaler la création par le Dr David Wake (Dep. of Integrative Biology, University of California-Berkeley, California, U.S.A.) d'un site internet consacré aux amphibiens menacés ou en déclin. Il s'agit de "Amphibian Web: an information system for amphibian conservation

International Seminar on Intensive Breeding of Wild Fauna for Food at Libreville (Gabon)

The organizing committee of this seminar, hold in French, had invited Mr Hardouin for the introductory lecture on "the species that could be envisaged for intensive breeding of wild fauna".

This seminar took place on 23 and 24 May 2000 and brought together about twenty lecturers and hundred participants originating from around fifteen countries. Details will be mentioned in the next Bulletin, but one of the final recommendations is worth mentioning:

"The seminar expects that important efforts will be undertaken to develop communication within the international community of producers and researchers through (i) periodical meetings of this type (ii) activation of the information network through RANC (Réseau africain d'information et de recherche sur les ressources alimentaires non conventionnelles) launched at Addis Abeba in December 1996 by FAO and CEA, through BEDIM (Bureau for Exchange and distribution of Information on Minilivestock) or other appropriate means".

Snake breeding

Other species than those usually mentioned in the Bulletins are from time to time evocated by correspondents. It had been the case for bats (n° 8/1 & 8/2) which were not retained as not bred but hunted, for iguanas (n° 8/2) and for a fluviatile tortoise in Amazona (this n° 9/1).

It will maybe become necessary adding snake breeding, which seems to be active in Viêt-Nam, 50 Km away from Hanoi. The meat of the animal is highly appreciated, but in some cases the snake eggs are also consumed. The high interest here, through a very brief communication, is that it deals with true breeding and not simple gathering in the wild. Details are expected.

biology". On peut chercher à <http://elib.cs.berkeley.edu/aw> Informations complémentaires auprès du Dr D. Wake: amphibiaweb@elib.cs.berkeley.edu Il s'agit davantage de conservation et de déclin, mais pas de systèmes de production contrôlée auxquels BEDIM s'intéresse surtout. Mais le site est plein d'informations.

Emploi de vers de compost en Europe

On a pu lire récemment quelques lignes sur les vers de terre dans une revue belge éditée par des aviculteurs spécialisés dans l'élevage (principalement pour des concours) de la race belge de volailles Coucou de Malines. Il s'agissait d'une question et de sa réponse, reproduites ci-dessous.

Question : Pouvez-vous me renseigner sur les moyens naturels d'apporter à mes poules pondeuses un supplément de protéine ?

Réponse : Oui. Placez à des endroits différents sur votre sol du parc extérieur des morceaux de planches à plat bien arrosées, puis après huit jours retournez les planches devant vos poules ; elles n'hésiteront pas à « plonger » sur les vers de terre qui se trouvent sous les planches. Excellent substrat ! Autre solution. Placez dans une caisse en bois quelques surfaces de carton alvéolées, superposées, chacune recouverte de 1 cm de farine. Placez la caisse à l'ombre, au sec et à l'intérieur de votre abri ; il se développera très vite des vers de farine (genre mille pattes). Distribuez cette friandise à vos protégés, ils vont se régaler.

Frogs

The frog farming or raniculture sector remains very active, maybe because it is new for many. It has been regretted that no scientists or technicians working in this field were present at the Libreville seminar last May, notwithstanding the efforts of the organizing committee.

A web site has been created recently by Dr David Wake (Dep. of Integrative Biology, University of California – Berkeley, California, USA) as "Amphibian web: an information system for amphibian conservation biology" (see: <http://elib.cs.berkeley.edu/aw>).

It deals essentially with conservation and decline phenomenon and not with production systems, which are more BEDIM concerns, but the site is full of information. Many thanks to Mrs Apolena ROUBINKOVA (Documentation Centre, Library, Faculté universitaire des Sciences agronomiques, Gembloux, Belgique; E-mail: roubinkova.a@fsagx.ac.be) who drew our attention on the matter.

Use of earthworms in Europe

One has recently read a few lines in a Belgian magazine published by chicken-breeders specialised in the breeding of the Belgian breed of chickens "Coucou de Malines" (mainly for competitions). The text was made up of a question and its answer, published as follows.

Can you inform me on natural methods to provide my laying chickens with a protein supplement?

Yes. Place in different parts of your plot well watered planks of wood, then after eight days, turn them over in front of your chickens; they will dive on the worms under the planks. An excellent supplement! Another solution is to place in a wooden box several layers of alveolated cardboard, each separated by a 1cm layer of flour. Place the box in the shade, in the dry inside a shed. Very quickly flour worm (like millipeeds) will develop. Hand out this treat to your chickens, they will love it.

Appel d'offre de la Fondation Internationale pour la Science (IFS) pour des allocations de recherche destinées aux jeunes chercheurs des pays en développement.

La Fondation Internationale pour la Science apporte son soutien aux jeunes chercheurs de valeur des pays en développement en attribuant des allocations de recherche ainsi que des services complémentaires comme l'achat d'équipements de recherche et la participation à des conférences scientifiques.

Les allocations accordées sont limitées à 12 000 USD par période d'un an au moins et de trois ans au plus, et peuvent être renouvelées deux fois. Une allocation de recherche est destinée à couvrir des dépenses d'équipements de recherche, de fonctionnement et de documentation scientifique.

Le candidat doit remplir les critères suivants:

- être ressortissant d'un pays en développement,
- mener la recherche proposée dans un pays en développement,
- être âgé de moins de 40 ans lors de la première demande de bourse (moins de 30 ans pour les candidats chinois) et au début de sa carrière scientifique,
- être titulaire d'un diplôme universitaire de 3^{ème} cycle (DEA minimum ou équivalent),
- être employé par une université ou une institution de recherche d'un pays en développement.

Les candidatures de ressortissants de pays Européens, y compris la Turquie et Chypre ainsi que les pays de l'ex-URSS, ne sont pas recevables.

La Fondation prendra en considération des demandes de bourses concernant la gestion, l'utilisation et la conservation des ressources biologiques. Les domaines de recherche prioritaires de la Fondation incluent: Ressources Aquatiques, Productions Animales, Productions Végétales, Foresterie/Agroforesterie, Agro-Alimentaire et Substances Naturelles.

Pour des renseignements supplémentaires et pour obtenir le formulaire de demande d'allocation de recherche en anglais ou en français, veuillez vous adresser à:

IFS, Grev Turegatan 19, S-114 38 Stockholm, Sweden

Fax: +46-8-54581801

E-mail: info@ifs.sc

Website: www.ifs.se

The International Foundation for Science – call for research grant applications from developing country scientists

The International Foundation for Science (IFS) provides support to young scientists of merit in developing countries by awarding research grants and providing grantees with additional services such as travel grants and purchasing assistance.

Research grants are awarded up to a maximum value of USD 12,000 for a period of one to three years and may be renewed twice. They are intended for the purchase of equipment, expendable supplies, and literature. Applicants must be citizens of, and carry out the research in, a developing country. They should also work at a university or national research institution in a developing country (countries in Europe, including Turkey and Cyprus, or the former Soviet Union do not qualify for support). As well as being under the age of 40 (under 30 for applicants from China) and at the start of their research career, candidates must possess a higher academic degree, which should be at least an MSc or equivalent.

The IFS supports projects dealing with the management, use, and conservation of biological resources. The Foundation organizes its activities into six Research Areas, viz Animal Production, Aquatic Resources, Crop Science, Food Science, Forestry/Agroforestry, and Natural Products.

For further information and application forms in English write to:

IFS, Grev Turegatan 19, S-11438 Stockholm, Sweden

Fax: +46-8-54581801

E-mail: info@ifs.se

Website: www.ifs.se

Chromolaena odorata (L.) une menace pour les escargots géants au Togo.

Ekoue K.S., Chercheur au CRA/F Station Avétonou – BP : 27 Agou – Gare, Togo

D'après une enquête menée dans la région des plateaux sur l'héliciculture au Togo (1) il ressort que l'herbe du Laos *Chromolaena odorata* (2) est une menace pour les escargots géants au Togo. Selon les renseignements tirés auprès de 40 revendeurs d'escargots géants des préfectures de Kloto et d'Agou, 80% ont confirmé que cette plante prend de l'ampleur et décime des populations d'escargots géants. Malheureusement l'élevage des escargots n'a pas encore atteint un niveau de maîtrise suffisant pour que l'on s'alarme. Il faudrait cependant déjà prendre des mesures urgentes de peur de perdre tous les escargots géants dans les forêts qui constituent des réserves importantes. Jusqu'à présent, l'approvisionnement en escargots au Togo est basé essentiellement sur le ramassage.

Lorsque cette herbe a envahi une forêt, on ne trouve que des coquilles vides d'escargots. Aucune précision n'existe encore sur la cause réelle de la mort des escargots (poils sur la feuille de *C. odorata*? substance narcotique contenue dans les feuilles?).

Beaucoup de recherches sont actuellement réalisées dans le cadre de la lutte contre la propagation de l'herbe du Laos qui, non seulement menace les escargots, mais envahit également les pâturages naturels. On note:

- la lutte intégrée par sursemis d'autres plantes telles que les *Mucuna* sp.
- la lutte par le girobroyage (cas de la station Avétonou)
- la lutte biologique par un lépidoptère (*Pareuchaetes pseudoinsulata* R.B.) qui a été utilisé pour éliminer la composée. Les chenilles de ce papillon se nourrissent des fleurs et des feuilles de *C. odorata*.
- la lutte chimique: désherbage chimique
- la lutte par les feux de brousse
- la lutte manuelle qui empêche la production de graines

Ces méthodes de lutte ne suffisent cependant jamais à elles seules.

Références bibliographiques.

1- Ekoue K.S. et Kuevi-Akue K. (1998) Enquête sur l'héliciculture au Togo – cas des régions Maritime et Plateaux – Rapport de synthèse.

2- R.M. King et H. Robinson (1992) – L'herbe du Laos. *Chromolaena odorata* (L.) et les savanes pastorales subhumides. La plante, les effets néfastes de son extension, les moyens de lutte. (Fiches tech. D'élevage trop. CF. CIRAD-EMVT).

Summary: *Chromolaena odorata* (L.) a threat to giant snails in Togo

A survey undertaken in the Plateaux area on snail population in Togo showed that *Chromolaena odorata* L. represents a threat to the local wild snails which are declining in number. Only empty shells are found where *C. odorata* is present, but the mechanisms of action are not known yet.

Observations sur les métamorphoses et l'alimentation de têtards à Kinshasa.

P. Kakule Mbonzo - Projet Greco/Jeep, Faculté des Sciences, Département de Biologie, Université de Kinshasa, B.P. 114, Kinshasa XI, Rép. Dém. Du Congo

Une étude a été faite au projet "Grenouilles Comestibles" à Kinshasa, R.D. Congo en vue de préciser le régime alimentaire des têtards d'une espèce locale: *Ptychadena (ex Rana) mascareniensis*. Le principe était basé sur des observations dans les milieux ruraux environnants de Kinshasa, où les têtards sont souvent rassemblés aux endroits habituellement utilisés pour le rouissage du manioc. Le matériel était constitué de deux demi-fûts métalliques, remplis jusqu'à 15 cm d'eau de l'usine nationale de traitement et de distribution d'eau potable. Le renouvellement d'eau intervenait deux fois par jour.

Les têtards, éclos après une incubation de 48 heures, étaient nourris à partir du troisième jour. Les racines tubéreuses de manioc découpées et ramollies dans les bacs constituaient l'aliment principal. Parfois des morceaux de pain étaient aussi consommés, mais jamais les feuilles de papayer, de manioc et de bananier également essayées. Il y a donc lieu de croire que l'alimentation de têtards de *Ptychadena mascareniensis* est constituée des produits végétaux décomposés et riches en amidon (cela n'a pas été démontré, même si c'est probable).

Par contre, la cellulose, contenue dans les feuilles des plantes citées ci-haut, difficilement décomposable, ne permettrait pas aux têtards de s'alimenter.

Ces affirmations sont peut-être valables également pour d'autres espèces localement chassées pour la consommation humaine notamment *Ptychadena superciliaris*, *Dicroglossus occipitalis* et *Rana angolensis*.

A l'issue de deux essais successifs, on a observé que les métamorphoses durent au moins 40 jours à la température ordinaire et au pH moyen de l'eau de 6,2. En effet, sur les 120 têtards observés, 73,33% (soit 88 têtards) sont devenus des grenouilles à 4 pattes, sans queue et à activités terrestres à partir du 40^e jour.

Vingt cinq individus (soit 20,83%) ont quitté le stade aquatique après une semaine et sept (soit 5,83%) sont morts en cours de l'étude.

SITUACIÓN ACTUAL DE LA CRIA DE CHARAPA (*Podocnemis expansa*) EN CAUTIVERIO.

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La charapa (*Podocnemis expansa*) es la especie de mayor tamaño dentro de la las tortugas fluviales amazónicas del género *Podocnemis*. Esta especie habita lagos y ríos de toda la cuenca amazónica llegando a medir más de 90 cm y pesar entre 15 y 40 kg, y es muy apreciada por las poblaciones locales tanto por su carne como por sus huevos. Los machos son de menor tamaño que las hembras. Las puestas se realizan en playas bien determinadas y pueden llegar hasta 138 unidades/puesta. El período de incubación dura una media de 45 días. El sexo de los embriones viene determinado por la temperatura de incubación.

En Brasil la situación es favorable para iniciar la cría en cautiverio de esta especie: Como resultado de un programa de conservación desarrollado por el Gobierno brasileño desde hace más de dos décadas, las poblaciones de *P. expansa* fueron clasificadas por la IUCN como fuera de peligro, y se permite su cría en cautividad con fines comerciales. En función del alto número de crías producidas en áreas naturales (3 millones por año), mediante protección de zonas de puesta e incubación artificial, el órgano federal brasileño encargado de la gestión de la naturaleza (IBAMA) autorizo en 1966, la cría de esta especie. Un 10% de la población anual, es repartida a criadores debidamente autorizados, cuyos proyectos fueron aprobados y tienen la infraestructura necesaria para realizar este tipo de actividad. Los animales son considerados aptos para el consumo, cuando alcanzan un peso máximo de 1.5 kg. El productor puede vender hasta 90 % de su producción y el 10% restante debe ser preservado para la formación de un plantel reproductor. Los animales antes de ser vendidos son inspeccionados y marcados por el órgano federal (IBAMA), con la finalidad de evitar el comercio ilegal de animales capturados en áreas naturales.

Sin embargo, esta no es la misma situación en otros países de la cuenca amazónica (Perú, Ecuador) , en los cuales las poblaciones de *P. expansa*, y otras tortugas fluviales han disminuido drásticamente por sobreexplotación. En estos casos, la cría con fines comerciales no parece una solución viable, y es preferible invertir en medios para evitar que la especie se extinga en la naturaleza.

Experiencias realizadas en Venezuela por la Fundación para el Desarrollo de las Ciencias Físicas Matemáticas y Naturales-FUDECI, reportan que durante el primer año los neonatos soportan densidades de hasta 75 individuos/m², sin que su tasa de crecimiento se vea afectada. La alimentación se realiza a base de pienso balanceado para peces, que presenta la ventaja de desmoronarse lentamente, dando tiempo para ser consumido en la superficie del agua. Los animales mantenidos en cautiverio durante cuatro años, alcanzan un tamaño de 40 cm de longitud del caparazón y un peso de 6 kg.

NOVEDADES DE LA ASOCIACION

Desde la publicación del último número, la Junta Directiva de BEDIM Asociación Internacional se reunió el pasado 18 de Marzo del 2000 con el objetivo de discutir diversos puntos pendientes y de la preparación de la próxima Asamblea General, que debe celebrarse, según la ley belga, cada dos años.

La Asamblea General tuvo lugar el pasado 13 de Mayo del 2000. En ella se aprobó la contabilidad de la asociación y también se mantuvieron las tarifas de cuotas vigentes, pero que a partir de ahora quedaran expresadas en EUROS y ya no en francos belgas.

El Presidente de BEDIM, profesor Jean-Jacques HARDOUIN, comunicó a la asamblea general su decisión de cesar sus actividades debido a su edad avanzada (70 años).

Varias gestiones se están realizando para encontrar alguna institución en Europa que quiera dar continuidad a BEDIM y reemplazar el papel del presidente en la animación de la asociación y la redacción del boletín. Aunque de momento, ningún organismo ha sido identificado todavía.

SEMINARIO INTERNACIONAL SOBRE LA CRIA DE FAUNA AFRICANA EN GABON

Durante el 23 y 24 de mayo pasados, tuvo lugar en Libreville (República de Gabón) un seminario sobre la minicria en países africanos. Este reunió a una veintena de participantes de diferentes países y a un centenar de personas interesadas en el tema. El comité organizador de dicho seminario invitó al Profesor Hardouin, actual presidente de BEDIM, a realizar la Conferencia inaugural que llevaba por título: "Las especies potencialmente interesantes para la minicria"

CRIA DE RANAS

RESPECTO A LA CRÍA DE ANFIBIOS, LA SECRETARIA DE BEDIM HA RECIBIDO DIVERSAS INFORMACIONES, ALGUNAS DE LAS CUALES SON ACCESIBLES POR INTERNET. COMO EL ACCESO A LA RED, NO ESTA AL ALCANCE DE TODOS NUESTROS LECTORES, EXPONEMOS AQUÍ UN BREVE RESUMEN :

A) ESTUDIO E INVESTIGACIÓN DE 4 RANAS TROPICALES

http://perso.wanadoo.fr/thiell/frogs/frogindex_fr.html
http://perso.wanadoo.fr/thiell/frogs/frogindex_us.html

A parte de algunas direcciones electrónicas de interés sobre la cría y biología de diferentes especies de Dendrobatis, se facilita información sobre algunas especies criadas en terrario :

Dendrobates auratus
Dendrobates leucomelas
Epipedobates tricolor

Hyla agalychnis callidryas

Esta información esta ilustrada con fotos, así como las condiciones generales de su cría, como la alimentación a base de la cría de moscas del vinagre (*Drosophilas*).

Otras especies de ranas tropicales, sobretodo decorativas se hallan igualmente disponibles en la dirección siguiente en Francia. No obstante no sabemos si se trata de un simple vendedor o de un productor:

La Ferme Tropicale
3, Place de L'Escadrille Normandie-Niémen
F-75013 Paris (France)

B) Exportación de carne y piel de ranas

FROGITTA es un gran productor de ranas toro en Salvador, Centroamérica, susceptible de ofrecer productos de buena calidad (4–8 ancas por Kg). Su dirección electrónica es fertica@es.com.sv y su fax: +503-226 67 67

CRIA DE AGUTIS (*DASYPROCTA* SPP.)

BEDIM HA TENIDO NOTICIAS RECIENTEMENTE DEL DESARROLLO DE INICIATIVAS SOBRE LA CRÍA DE AGUTÍS, TAMBIÉN CONOCIDO COMO CUTIA EN BRASIL, GUATUZA O COTUZA EN CENTROAMÉRICA, GUAQUEQUE EN MÉXICO O AÑUJE EN PERU.

Una, de ellas se halla en la Universidad Federal de Para, en Belem (Brasil) donde el Laboratorio de Reproduccion animal, del Departamento de Biología, esta estudiando la reproducción en *Dasyprocta prymnolopha* y *D.leporina*. Aparentemente, un macho puede cruzarse con dos o tres hembras con buenos resultados. El objetivo de este equipo de investigación es conseguir alcanzar la inducción del celo en la hembra de esta especie. Ají

Dirección: Laboratorio de Reproducción Animal, Departamento de Biología, CCB, UFPA, CEP 66073-600, Belem, PA. Brasil.

Otra iniciativa interesante es la de una ONG peruana que lleva unos 10 años trabajando con *Dasyprocta* en la selva alta del Marañon, intentando implicar a comunidades nativas en la cria de este roedor.

Contacto electrónico : saipe@terra.com.pe Responsable: Rocio Villalon

Cualquier información sobre la mini-cria en Latinoamérica o España, podéis mandarla a la siguiente dirección electrónica: bedim.al@blues.uab.es

¡ Esperamos mas colaboraciones!

SURVEY OF THE LITERATURE

EDIBLE AND USEFUL RODENTS

Alogninouwa T., Kpodékon M. & Yewadan L.T. - Effects of castration on growth and endocrine pattern in the grasscutter (*Thryonomys swinderianus*, Temminck 1827)

Language : English

Source : Ann. Zootech., 1999, 48: 225-230.

Address : Ecole nationale vétérinaire de Lyon, unité pathologie médicale du bétail, 1, avenue Bourgelat, B.P.83, F-69280 Marcy l'Étoile, France.

Abstract : The growth rate of castrated animals was lower than that of intact males, but higher than that of females. The weight gain was positively correlated with blood thyroxine concentration.

Montes-Pérez R.C. – La crianza del tepezcuintle *Agouti paca* [The breeding of *Agouti paca*]

Language : Spanish (no English summary)

Source : Consejo Nac. de Ciencia y Tecnologia, Universidad Autonoma de Yucatan, Fac. De Medic. Veter. Y Zootecnia, 1999, 30p.

Address : Fac. De Medic. Veter. y Zootecnia, Univ. Autonoma de Yucatan, Méridia, Yucatan, Mexico.

Abstract : The booklet summarizes the results of experimental work performed at the Faculty and the achievements of other scientists. The paca is described (60-75 cm plus 2-3 cm tail, 6-14 Kg liveweight, ...). The plants consumed in the wild are mentioned as well as those accepted in captivity. Practical information on the way to feed the rodent are given. Reproduction parameters are mentioned in detail (\pm 114 d. pregnancy, \pm 187 d. between births, one young at a time). Infrastructures are described and illustrated by some pictures. Diseases happening (external and internal parasites, respiratory infections, ...) are described with usual treatments.

The last part of the booklet deals with recommendations for the establishment of a unit in charge of conservation and management of the wildlife in the forests.

Houben P. – Elevage d'aulacodes au Gabon / Eléments de bilan [Grass-cutter breeding in Gabon / Data for assessment]

Language : French (no English summary)

Source : Canopée 1999, n°15, 7-8 (Ecofac/C.E., Libreville)

Address : D.G.E.G., B.P.9129, Libreville, Gabon

E-mail: vsfqab2@internetgabon.com

Abstract : A high sale price for grass-cutter *Thryonomys swinderianus* meat or live animals makes its breeding profitable if the breeders are conscientious. Most grass-cutters owners around Libreville are people interested by the breeding in terms of funds which they provide, but the success is then in the hands of the paid labourers. In rural or forestry areas, peasants and retired people have also shown interest for grass-cutter

production. Cooperation exists between the project "Développement au Gabon de l'Élevage du Gibier" and organizations in Cameroon. The project also tested cheaper infrastructures based on local raw materials, making the cost of a 60 animals capacity around 200,000 FCFA (labour cost included). New producers are trained at the project site and supplied with an initial group of 5 castrated males for fattening, giving the first revenues as early as 6 months later. Fattened animals can be sold for 14,000 FCFA or more at 6 to 13 months of age (according to feeding) and 4 kg liveweight, leaving a margin around 10,000 FCFA which is more or less equivalent to salaries paid if any. A feed unit will soon sell pellets at ± 150 FCFA/kg. The monitoring of the farms is not easy, but some are already running since 3 years, successfully. Dense extension is required to reach one of the goals i.e. producing enough grass-cutter meat at reasonable cost so as to alleviate the existing poaching pressure.

Jori, F. –Anatomia Funcional del aparato reproductor del pureco espin de cola de pincel (*Atherurus africanus*) [Functional Anatomy of female reproductive tract of the Brush tailed porcupine(*Atherurus africanus*)]

Language : Spanish

Source : MSc Thesis, June 1998. 97 pp, 10 tables, 24 figures, 76 references.

Address : Unitat d'Anatomia i Embriologia. Facultat de Veterinaria, Universitat Autònoma de Barcelona, Bellaterra 08193, Barcelona, Spain.

Abstract : Thirteen carcasses of wild females of Brush tailed porcupine (*Atherurus africanus*) were obtained randomly throughout the year between August 1995 and February 1997 from the markets in Libreville (Gabon) to analyse the morphology of the female genital tract, emphasising on the histological features of the ovary. The uterus of this porcupine is bicornual, and the horns are separated by a septum, like in *Dasyprocta* spp. Other distinctive anatomical features were the ovarian bursa and the transition between the ovaric duct and the uterus. Histologically, the ovary was similar to other hystrycomorph rodents. All pregnant females had only one foetus and 27 apparently non fertilised foetus were recovered by oviductal flushing in one female. In pregnant females, the mean number of antral follicles in the adult females was 26 ± 9 . As in other hystrycomorphs, luteal population was represented by a large *corpus luteum* of pregnancy ($\varnothing 4821 \pm 1364 \mu\text{m}$), 16 ± 6 functional corpora lutea ($\varnothing 1709 \pm 421 \mu\text{m}$) and 7 ± 9 accessory *corpora lutea* with a degenerated oocyte inside ($1629 \pm 463 \mu\text{m}$). The mean number of antral follicles in the adult females (26 ± 9) suggests that the brush tailed porcupine is a polyovular species and that most of the fertilised oocytes die before implantation resulting in a basically mono-embryonic species. Such an important ovulation contributes to the formation of luteal tissue that could play a role in pregnancy maintenance as it occurs in

few mammal species such as the Plains vizcacha (*Lagostomus maximus*) or the Elephant shrew (*Elephantulus myurus*).

Roca, R.D.; Veiga, N. ; Neto, RBD and Cervi RC : Notas científicas características sensoriais de carne defumada de capivara. [Sensorial characteristics of smoked meat of capybara (*Hydrochaeris hydrochaeris*)]

Language : Portuguese

Source : Pesquisa Agropecuaria Brasileira, 1999, 34, 3, 487-492.

Address : Departamento da Tecnologia e Produção Agropecuários, UNESP, FCA. Caixa Postal 237, BR-18603970, Botucatu, SP, Brazil

Abstract : This paper analyses the chemical and sensorial characteristics of smoked capybara meat in laboratory scale, utilising calcium chloride marination. Pieces of palette and neck with and without calcium chloride marination treatment were analysed. The average composition of capybara meat was water 76.59%, ash 2.16%, protein 20.04% and ether extract, 2.77%. No significant differences were found in taste, aroma, strange taste and strange aroma. The smoked palette showed better tenderness and juiciness. The sensorial properties were not affected by calcium chloride marination.

Nogueira da Cunha, S.S; Nogueira-Filho S.L.G.; Otta, E.; Dias dos Santos, C.T.;de Carvalho, A.: Determination of the causes of infanticide in capybara (*Hydrochaeris hydrochaeris*) groups in captivity.

Language : English

Source : Applied-Animal-Behaviour-Science, 1999, 62: 4, 351-357.

Address : Departamento de Zootecnia/ESALQ/Universidade de Sao Paulo, C.P. 9, Piracicaba-SP CEP: 13418900, Brazil.

Abstract : Infanticide represents an important cause of mortality of offspring in capybara reared in intensive conditions. At the University of Sao Paulo, sixty-four capybara births were examined from 1984 to 1995, to study the correlation of offspring deaths with inexperienced primiparous females, place of parturition in a maternity pen (isolated) or reproduction pen (in group), or familiarity among group members. The results showed that infanticide was associated with reproductive groups containing females who had not been together since weaning (unfamiliar females) in spite of living together without conflict until parturition when they killed the offspring of other females. The results indicate that when groups of females are kept together since weaning, there is no need to separate the females at parturition.

Abiodun, A.A., Seepersadsingh, N; Inder, L and Caesar, K: Some bacterial enteropathogens in wildlife and racing pigeons from Trinidad.

Language : English

Source : Journal of Wildlife Diseases, 1998, 34, 1, 73-80

Address : School of veterinary Medicine., Faculty of Medical Sciences, University of the West Indies, St Augustine, Trinidad and Tobago

Abstract : The government of Trinidad and Tobago has embarked on a policy to encourage wildlife farming. In order to investigate the potential health risk of this activity, faecal and cloacal swabs of farmed and free-ranging wildlife and racing pigeons were cultured in order to determine the prevalence of enteric zoonoses in the wildlife population of Trinidad. Among several farmed wildlife species, 88 *Dasyprocta agouti*, 23 *Amphisaema alba* snakes, 19 *Mazama americana trinitatis* deer and 10 *Agouti paca* were tested. Among 14 species of farmed wildlife studied, 7% and 5% of 184 faecal or cloacal swabs were positive to *Salmonella* spp. and *Campylobacter* spp., respectively. *Yersinia* spp. was not cultured from any of the samples. Although the prevalence of *Salmonella* spp. and *Campylobacter* spp. in farmed wildlife in Trinidad was low. The practice of wildlife farming and the increased consumption of meat from wildlife may increase the health risk to human consumers, if preventive measures are not taken.

Quintana,R.D.; Monge,S.; Malvarez,A.I.: Feeding patterns of capybara *Hydrochaeris hydrochaeris* (Rodentia, Hydrochaeridae) and cattle in the non-insular area of the Lower Delta of the Parana River, Argentina.

Language : English

Address : Laboratorio de Ecologia Ambiental y Regional, Dpto. Ciencias Biologicas, FCEyN, UBA Pabellon II, Ciudad Universitaria, 1428 Buenos Aires, Argentina.

Source : *Mammalia*, 1998, 62: 1, 37-52.

Abstract : Feeding habits of capybaras and cattle living in the non-insular area of the Lower Delta of Parana region were studied. The composition of their diets was estimated through microhistological analysis of the faeces. The results showed that *Poaceae* was the main consumed plant family throughout the year for capybaras and cattle, with the exception of winter, when cattle consumed a higher proportion of *Cyperaceae*. For the 3 herbivores, only a few items constituted the most important contribution to the diets. Five food items (*Cynodon dactylon*, *Panicum grumosum*, *Luziola peruviana*, *Zizaniopsis bonariensis* and *Eleocharis* spp.) represented more than 60% of the diet for capybara and cattle in every season. A similar foraging pattern was shown by both herbivores during the 2 years. Capybara and cattle diet compositions were similar, except in summer, when both diets were different. This last fact was also observed when the winter diets of the first 2 herbivores were compared with that of coypus. With the exception of summer, the seasonal trophic niche breadths were similar between capybaras and cattle. However, their values indicate a relatively narrow niche in every season, defining both herbivores as selective species. In contrast, coypus can be defined as more generalistic species although they exhibit a less diverse diet than the others. Results suggest that during the critical season (winter), the foraging habits of capybaras and cattle would diverge, compensating for the low plant availability.

In the other seasons, the increase in plant availability would lead to a situation of high overlap in the use of resources.

Martino,P.E.; Stanchi,N.O.: Causes of death in captive nutria (*Myocastor coypus*) in Argentina.

Language : English

Address : Department of Microbiology, CIC, Veterinary College, University of La Plata, 60 y 118, CC 296, (1900) La Plata, Argentina.

Source : Israel Journal of Veterinary Medicine, 1998, 53: 3, 83-88

Abstract : In a retrospective survey of the causes of death of 1026 nutria (*Myocastor coypus*) between 1984 and 1993 in Argentina, infectious diseases accounted for 61 % of the mortality. Because of the random sampling procedures, the results can be considered representative of the entire population of captive nutria. Outbreaks involving several simultaneous deaths were attributed to pneumonia caused by *Streptococcus zooepidemicus* (36%), a disease that has a seasonal incidence. Other common natural infections included enteritis caused by *Salmonella typhimurium* (7%), yersiniosis by *Yersinia pseudotuberculosis* (5%) and septicaemia by various bacteria (5%). The main non-infective causes included trauma (18%), starvation (4%) and meteorism (5%). Pesticide poisoning was suspected in 18 cases. Almost half of the deaths (49.2%) occurred among immature animals (from 4 weeks to 10 months of age). The results identified the primary causes of death and their relation with age, sex and geographical location.

Pelliza,A; Willems,P; Nakamatsu,V; Manero,A :Atlas dietario de herbivoros patagonicos. [Atlas of Patagonian herbivore diets]

Language : Spanish

Source : 1997, vii + 109 pp.; 58 references, ISBN 950-9853-88-7.

Address : INTA EEA Bariloche; San Carlos de Bariloche; Argentina

Abstract : This book provides information on the principal animal production systems in Patagonia, Argentina with the most relevant data presented in map form. Based on statistical analysis of representative samples from 48 physically and floristically distinct (PFD) zones of Patagonia 20 diet types are listed for sheep, cattle, horses, guanacos (*Lama guanicoe*), European hare (*Lepus capense*), Patagonian cavey (*Dolichotis patagonium*), Darwin's rhea (*Pterocnemia pennata*), red deer and the plains visacha (*Lagostomus maximus*). The list consists of 2 parts with diets characterized by a single forage (part A) and diets characterized by 2 or more forages (part B). Forage plants used to define diet types are: woody plants, annual and perennial grasses, graminoids and herbs. Forages are listed according to their importance in the diet: important (20 to 30%), very important (30 to 40%), predominant (more than 40%). Values less than 10% are not recorded. Each diet is identified by animal, season, province and PFD. This is followed by 35 colour-coded maps representing the diet types of sheep, cattle and guanacos and tabulated data for the other species. Lists of

the principal forages according to province, PFD and season are also presented.

Niedzwiadek,S; Zajac,J; Bielanski,P.: Stan i perspektywy chowu nutrii [The situation and prospects for breeding nutrias]

Language : Polish with English summary

Address : Instytut Zootechniki, 32-083 Balice, Poland.

Source : Biuletyn Informacyjny Instytut Zootechniki. 1998, 36: 2, 21-26;

Abstract : The number of breeding female nutrias in Poland was 250 000 in 1970, 4 928 000 (peak) in 1982, and 78 000 in 1996, the corresponding number of pelts produced being 1 120 000, 1 858 000 and 320 000. Nutria carcasses contain 78-85% meat, which contains 65% water, 18.5% protein and 15% fat. The authors consider that the farming of nutrias for meat and pelts is likely to develop rapidly in Poland.

Van Zyl A; Meyer AJ; van der Merwe : The influence of fibre in the diet on growth rates and the digestibility of nutrients in the greater cane rat (*Thryonomys swinderianus*).

Language : English

Address : Department of Zoology-Entomology, University of Pretoria, South Africa. E-mail : avzyl@iafrica.com

Source : Comp Biochem Physiol A Mol Integr Physiol 1999 Jun;123(2):129-35

Abstract : The greater cane rat *Thryonomys swinderianus* is a coprophagous rodent in which fermentation occurs in the large caecum. The extent to which a 45% increase in the fibre component of the diet influenced growth rates of cane rats and the digestibility of nutrients and energy was investigated in two feeding trials. Higher fibre levels in the diet reduced the digestibility of dry matter, protein and fat, while animals digested fibre components (neutral-detergent fibre, acid detergent fibre, hemicellulose and cellulose) with a comparable efficiency to those maintained on a low fibre diet. In one of the trials animals fed the high fibre diet exhibited significantly lower growth rates than animals fed the low fibre diet. Digestibility coefficients of the cane rats for neutral-detergent fibre and protein seem to be intermediate to high when compared to reported values for the porcupine, guinea-pig, degu and rabbit. It is suggested that the ability of cane rats to utilise large quantities of fibre enable them to survive periods when only dry grass is available.

Adu EK; Alhassan WS; Nelson FS : Smallholder farming of the greater cane rat, *Thryonomys swinderianus*, Temminck, in southern Ghana: a baseline survey of management practices.

Language : English

Address : Animal Research Institute, CSIR, Achimota, Ghana.

Source : Trop Anim Health Prod 1999 Aug;31(4):223-32

Abstract : Baseline management practices and productivity of captive greater cane rats were studied between February and July 1992 using questionnaires with 33 practising and former farmers in 16 villages in three regions in southern Ghana. The colony sizes were relatively small, ranging between 1 and 96, with nearly a 100% farmer drop-out rate. The mean litter size of the greater cane rats in this study was 4.8 ± 0.13 , with the young being weaned at 8.8 weeks old. Although nearly all the farmers interviewed (90.9%) had long-term commercial intentions, a number of problems militating against their objectives were encountered. These included lack of technical support on proper management practices for efficient production, housing design, dry season feeding, sex determination and the acquisition of foundation stock. In conclusion, these studies have shown the generally poor state of the greater cane rat industry in Ghana, which requires research into almost all aspects of the productivity of this animal under captive breeding

Adu EK; Yeboah S. : The efficacy of the vaginal plug formation after mating for pregnancy diagnosis, and embryonic resorption in utero in the greater cane rat (*Thryonomys swinderianus*, Temminck).

Language : English

Address : Zoology Department, University of Cape Coast, Ghana.

Source : Trop Anim Health Prod 2000 Feb;32(1):1-10

Abstract : The efficacy of the detection of vaginal plug formation after mating for pregnancy diagnosis, and the degree of embryonic resorption were studied in 67 wild greater cane rats (*Thryonomys swinderianus*) at Esiam in the Ekumfi District, Ghana, over a period of 3 months. Vaginal plug formation was first observed on day 59 of gestation, and could be used for pregnancy diagnosis on or after that date. However, the vaginal orifice subsequently opened a couple of times prior to day 105 of gestation and further checks for pregnancy after day 59 of gestation are suggested. Animals with unplugged vaginas 105 days after mating could, however, be considered as not pregnant. The mean number of implantation sites and litter size in the greater cane rat were 7.2 ± 0.18 and 3.4 ± 0.29 , respectively, the embryonic resorption rate being $42.7 \pm 6.66\%$. The significant positive correlation between the number of implanted embryos and the bled-out carcass weight suggests a positive role of maternal nutrition in increasing the litter size in the greater cane rat. The incidence of post-partum oestrus suggested that the greater cane rat can be re-bred immediately after parturition.

Adu EK; Aning KG; Wallace PA; Ocloo TO : Reproduction and mortality in a colony of captive greater cane rats, *Thryonomys swinderianus*, Temminck.

Language : English

Address : Animal Research Institute, CSIR, Achimota, Ghana.

Source : Trop Anim Health Prod 2000 Feb;32(1):11-7

Abstract : The reproductive performance and mortalities in a colony of captive greater cane rats, *Thryonomys swinderianus*, were monitored from 1992 to 1998. The results indicate that the mean litter size and litter weight were 2.9 +/- 0.51 and 439.4 +/- 81.23 g, respectively. These figures are low compared to those reported elsewhere. However, the mean birth weight was 151.2 +/- 11.08 g, higher by 12% than previously reported values. It is considered that poor nutrition, excessive exposure to light and stress were responsible for the relatively poor reproductive performance reported in these animals. The main causes of death were traumatic injuries (32%) and pulmonary congestion (16%).

EDIBLE TROPICAL SNAILS

Fortier A. – De l'efficacité sociale d'une réglementation / Le cas du ramassage de l'Escargot de Bourgogne *Helix pomatia* [About the social efficiency of a regulation / The case of the gathering of the Burgundy snail *Helix pomatia*].

Language : French (no summary)

Source : Courrier Environnement INRA n°38, XI/1999: 75-83.

Address : Agnes.fortier@wanadoo.fr

Abstract : Article already issued in the journal Economie Rurale n°252, VII-VIII/1999. Official regulations limit in France gathering of *Helix pomatia*, but are not really enforced. On the other side, collectors in nature are part of an old local tradition but non the less they are growing scarce. The paper makes an excellent overview of Burgundy snail story in the rural environment, and tries explaining why imports of snails of other species play today an important role to meet the high demand from restaurants and private consumers. Amongst other recommendations, the author suggests a position based on the European Union directive "Habitats" (1992) and an ecological network named "Natura 2000" in order to maintain and reconstitute the biodiversity.

Ekoue K.S. – *Chromolaena odorata* (L.) une menace pour les escargots géants au Togo [*Chromolaena odorata* L. a threat to giant snails in Togo].

Language : French

Source : BEDIM Bulletin, 2000, 9, 1:

Address : CRA/F Station Avétonou; BP : 27 Agou – Gare; Togo.

Abstract : A survey undertaken in the Plateaux area on snail breeding in Togo showed that *Chromolaena odorata* L. represents a threat to the local wild snails which are declining in number. Only empty shells are found where *C. odorata* is present, but the mechanisms of action are not known yet.

Schneider K., ter Meulen U., Marwoto R.M. & Soewondo Djojosoebagio – Current situation of edible snails in Indonesia.

Language : English

Source : Tropicultura, 1998-99, 16-17, 2: 59-63.

Address : University of Göttingen, Institut für Tierphysiologie und Tierernährung, Kellnerweg 6, D-370077 Göttingen/Germany.

Abstract : From March 7, 1995 to April 16, 1995 during the rainy season the utilisation of edible snails was investigated in Indonesia. To assess the current situation, the focus was put to answer the following questions:

- is it feasible under the present circumstances to domesticate these snails with the aim to conserve the natural resources?
- could any individual or private initiative be enhanced or utilized?
- would local disadvantaged groups (traditional animal farmers, women or youths) be benefited through domestication of these snails?
- is there any existing private organisation or NGO, which already gathers and trades the snails or would be interested to do this in the future?

Snails gatherers, -dealers and -farmers were visited and interviewed on the following topics using standardised questionnaires: Spreading and ecology, ways of marketing, consumption habits, breeding and rearing. Biotopes were also visited and investigated.

Results are as follows:

Spreading and ecology: *Achatina fulica*, *Pomacea canaliculata*, *Pila ampullacea* and *Bellamia javanica* are eaten. The snails can be found all over Java.

Ways of marketing: the snails gathered in the biotope are either marketed directly or through various marketing paths. *A. fulica* is exported in large quantities. The population is therefore endangered.

Consumption habits: snails are not eaten regularly. Snail meat is known to be healthy. The consumption depends on the consumer's ethnic background.

Breeding and rearing experience: the breeding of *P. canaliculata* is forbidden in Indonesia. There is no interest in breeding *P. ampullacea* or *B. javanica*. The breeding of *A. fulica* can benefit disadvantaged groups financially and help to conserving the natural population.

Pacheco P., Martins M.F., Luchesi M., Ribeiro S.A., Spers A. & Rodrigues P.H.M. – Estudo do desempenho do escargot *Achatina fulica* em diferentes tipos de solo [Study of the performance of the snail *Achatina fulica* in different types of soil].

Language : Portuguese

Source : Arq. Inst. Biol., São Paulo (Brazil), 1998, 65, 2, p.9-14.

Address : Departamento de Nutrição e Produção Animal, Faculdade de Medicina Veterinária e Zootecnia Universidade de São Paulo, Campus de Pirassununga, CP 23, CEP 13630-000, Pirassununga, SP, Brazil.

Abstract : To evaluate the effect of different soils and their effect on the carcass of the snail *Achatina fulica*, an assay was prepared with a completely randomized design, with 4 treatments, each with 10 experimental units/repetitions. The snails were medium size, 45 days old, and the assay was 120 days long, utilizing the Basal Diet (Pacheco et al., 1996). The treatments were, T1 (Acric Ferralsols), T2 (Orthic Ferralsols with high level of sandy), T3 (Acric Ferralsols with 25% worm humus) and T4 (Orthic Ferralsols). After the experimental procedure, the snails were fasted for 7 days and then slaughtered, weighed and measured. The carcass was divided into shell, meat, hepatopancreas, genitalia/epiphragm and fluid (blood and mucus).

Pacheco P., de Fátima Martins M., Battemarque V., Rodriguez P.H.M., Ghion E. & Spers A. – Diferentes fontes de cálcio na dieta do escargot gigante africano (*Achatina fulica*) e seu efeito no crescimento e rendimento de carcaça [Effects of different sources of calcium on growth and carcass composition of the giant African Snail *Achatina fulica*].

Language : Portuguese

Source : Higiene Alimentar (Sao Paulo, Brazil), 1998, 12, 55, 43-46.

Address : Departamento de Nutrição e Produção Animal, Faculdade de Medicina Veterinária e Zootecnia da USP, "campus" de Pirassununga, Sao Paulo Province, Brazil.

Abstract : To evaluate the effect of different calcium sources and their effect on the carcass of the snail *Achatina fulica*, was prepared an assay with a completely randomized design, with 4 treatments, each with 10 experimental units/repetitions. The snails were medium size, 45 days old, and the assay was 120 days long, utilizing the Basal Diet (Cuellar et al. (1986)). The treatments were, TI (250 g of limestone/ kg of BD), TII (250 g of snail shell meal/ kg BD), TIII (250 g of bone meal/ kg of BD), TIV (25% of calcium carbonate in the BD).

After the experimental procedure , the snails were fasted for 7 days and then slaughtered, weighted and measured. The carcass was divided in shell, meat, hepatopâncreas, genitalia / epiphragm and fluid (blood, mucus and water).

Pacheco P. & de Fátima Martins M. – O Escargot [The Snail].

Language : Portuguese (No Summary in English)

Source : Higiene Alimentar (Sao Paulo, Brazil), 1998, 12, 55, 19-20.

- Address** : Faculdade de Medicina Veterinária e Zootecnia, USP, Pirassununga – SP.
- Abstract** : The short paper reviews the situation regarding production and consumption of *Helix* spp and *Achatina* spp in Europe, Africa and South America, with some emphasis on *A. fulica*. Scientific work is under way by the authors institution on *A. fulica* and on *Achatina monochromatica*.

INSECTS

Bodenheimer F.S. – Insects as human food.

- Language** : English
- Source** : Dr. W. Junk, Publishers / The Hague, 1951, 352 p., 47 fig.
- Address** : Hebrew University, Jerusalem, Israël.
- Abstract** : Though issued in 1951, this book can be considered as a reference in the field of the use of insects as food for man. The entomophagous habits on the various continents and from the Antiquity to the present days are described in general. Four chapters deal separately with Australia, Africa, Asia and Americas. Grubs, beetles, moths and other lepidoptera, bees, ants, locusts ... are mentioned indeed, but as in the fifties descriptions of the habits and the capture techniques represent the largest part of the book.

Chrysostome C. – Utilisation des termites pour le démarrage des pintadeaux: essai d'alimentation en milieu rural [The use of termites for raising young guinea fowls: nutrition study at village scale].

- Language** : French
- Source** : Atelier RADAR et Assemblée Générale, 9-13 décembre 1997, M'Bour, Sénégal.
- Address** : Université Nationale du Bénin – Faculté des Sciences Agronomiques – BP 526 Cotonou, Bénin.
- Abstract** : The use of termites to feed young guinea fowls has been tested under village breeding conditions. The results obtained show that termites of the genus *Triner vitermes* can replace either legume seeds and other local by-products or cotton seeds without gossipol. On the contrary those of the genus *Noditermes*, considered as toxic by people, lead to a much lower weight gain. Same diets given to young chickens induced worse results and even mortalities using *Noditermes*.

Thomas S. – A wriggling remedy.

Language : English

Source : Chemistry and Industry, 7 Sept. 1998, 680-683.

Address : S.M.T.L., Princess of Wales Hospital, Coity Road, Brigend, Mid Glamorgan, CF31 1RQ, U.K.

Abstract : The value of maggots for debriding wounds containing dead or infected tissues is known for centuries. Today, explanations have been found on how fly larvae can serve as efficient scavengers, removing dead material without destroying living tissue and even more stimulating a rapid increase in tissue formation. Recently a larval breeding unit has been set up in the U.K. (South-Wales) which supplied over two years about 4.000 containers of sterile larvae to over 350 centres (mainly in the U.K. but also in Sweden, Germany and Belgium) for treating chronic wounds such ulcers, sores, traumatic injuries, The most commonly used fly is *Lucilia sericata* (Calliphoridae) or "green-bottle fly". Some details on its life cycle and how to breed it are provided. The way to use the maggots for therapy is described. The author's conclusion is that some medical and nursing staff who found the idea distasteful, outmoded or unacceptable became enthusiastic converts as soon as they saw at first hand the benefits of larval therapy.

FROGS

Hill BD, Green PE & Lucke HA – Hepatitis in the green tree frog (*Litoria caerulea*) associated with infection by a species of *Myxidium*.

Language : English

Source : Aust. Vet. J., 1997, 75, 12: 910-911.

Address : Rockhampton Veterinary Laboratory, PO Box 6014, Rockhampton, Queensland 4702, Australia.

Abstract : In Australia, causes for the decline in native frog populations include possible involvement of pathogenic viruses. A severe hepatitis in *Litoria caerulea* associated with *Myxidium* has been found.

Rajesh Chahota & Katoch R.C. – Screening of rats, wall lizards and frogs for the prevalence of *Chlamydia psittaci*

Language : English

Source : Indian Journal of Animal Sciences, 1997, 67, 6: 489-490.

Address : Himachal Pradesh Krishi Vishavavidyalay, Palampur, Himachal Pradesh 176 062, India.

Abstract : Chlamydiosis is a wide spread contagious malady among birds and animals. Samples comprising 10 wall lizards, 12 rats and 14 frogs (*Rana tigrana*) were screened for the presence of *Chlamydia psittaci*. Only 3 out of 12 rats (25%) yielded *C. psittaci*, all the wall lizards and frogs were not found harbouring *C. psittaci*.

Yalcin Suzan., Dogruer Y & Yalcin S. – Microbiological quality and chemical composition of frog meat.

Language : Turkish (summary in English)

Source : Journal of Central Animal Research Institute, Turkey, 1995, 5(1-2): 39-40.

Address : Selcuk Univ., Faculty of Veterinary Medicine, Konya, Turkey.

Abstract : Analyses of meat from frozen legs of *Rana esculenta* were made. No *Salmonella* were found, and Coliform microorganisms were 3.1×10^4 per gram. Mean values in the samples were: 23.23 DM, 21.55 protein, 0.97 fat and 0.7%. Ca was 15.11 mg/100 g of sample, P 98.90, Mg 11.77 and Zn 0.67. Mean pH was 6.38.

Oyamada T., Hirata T., Hara M., Kudo N., Oyamada T., Yoshikawa H., Yoshikawa T. & Suzuki N. – Spontaneous Larval *Gnathostoma nipponicum* Infection in Frogs.

Language : English

Source : J. Vet. Med. Sci., 1998, 60, 9: 1029-1031.

Address : Depart. Veter. Parasitology and Veter. Pathology, School of Veterinary Medicine and Animal Sciences, Kitasato University, Towada, Aomori 034-8628, Japan.

Abstract : From June 1993 to September 1997, a survey was carried out for prevalence of larval *Gnathostoma nipponicum* infection in several kinds of frogs, toads, and their tadpoles collected from an endemic area of this nematode. Two frog species, one of 436

(0.2%) *Rana nigromaculata* and 51 of 147 (34,7%) *R. catesbeiana* were infected.

Devondel Y. & Gomez O*. – Ranaculture: un mini-élevage d'avenir? [Frog production: a minilivestock for the future?]

Language : French (no English summary)

Source : Dissertation / B-7800 Ath, Belgium; 2000, 63 pages + 15 pages appendices.

Address* : 12 rue des Verreries, B-6040 Charleroi, Belgium;

Olivier_gomez@usa.net

Abstract : The authors have reviewed many documents dealing with the biology and the breeding requirements, the socio-economical aspects but also the processing of frogs and frog legs. Details are given on farming infrastructures. More interesting even are the information provided on frog diseases. A good technical document written by two young students.

MANURE WORMS

Dalby P.R.*, Baker G.H. & Smith S.E. – Competition and cocoon consumption by the earthworm *Aporrectodea longa*.

Language : English

Source : Applied Soil Ecology, 1998, 10: 127-136.

Address* : Department of Soil Science, Waite Campus, University of Adelaide, PMB1, Glen Osmond, 5064 SA, Australia.

E-mail: pdalby@waite.adelaide.edu.au

Abstract : The presence of the deep burrowing earthworm *Aporrectodea longa* was examined for its effect on three other common pasture species (*A. caliginosa*, *A. trapezoides* and *Microscolex dubius*) and the roles these other species would have on reducing the ability of *A. longa* to colonise agricultural land in the high rainfall zone (>600 mm) of southern Australia. The establishment of *A. longa* into pastures in southern Australia is unlikely to be impeded by the presence of earthworm species already established. The spread of *A. longa* in this region will not significantly reduce populations of *A. trapezoides* and *A. caliginosa*, but is likely to decrease populations of *M. dubius* significantly.

Rodriguez Aragonés C., Del Valle Portilla M.T. & Noa Romero E. – Fluctuación temporal de nemátodos parásitos de *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) en crías semiartificiales [Temporal fluctuation of parasitic nematodes of *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) in semiartificial breeding].

Language : Spanish with English summary

Source : Ciencias Biológicas (Cuba), 1994, 26: 70-82.

Address : Facultad de Biología, Universidad de La Habana, La Habana, Cuba.

Abstract : The presence of nematodes like *Mesidionema praecomasculatis* Poinar, 1978 and *Thelastoma endoscolicum* Poinar, 1978 was studied in the digestive tract of *Eudrilus eugeniae* (Kinberg, 1867) kept in semiartificial breeding. The species was parasited in 91,3% by *M. praecomasculatis* and 44,0% by *Th. endoscolicum*. The community prevalence was kept above 80,0% during the year and invasion intensity varied between 1 and 21 for *M. praecomasculatis* and 1 and 14 for *Th. endoscolicum*.

Rodriguez Aragonés C. – Desarrollo del sistema reproductor y oviposición de *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) a 24°C y 30°C [Development of the reproductive system and oviposition of *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) at 24°C and 30°C].

Language : Spanish with English summary

Source : Revista Biología (Cuba), 1991, V, 2/3: 159-167.

Address : Departamento de Zoología, Facultad de Biología, Universidad de La Habana, La Habana, Cuba.

Abstract : A total of 400 *Eudrilus eugeniae* (Kinberg, 1867) were reared in a mixture of rabbit manure and banana stalk. Oviposition curves show 2 maximum values for both temperatures of 24°C and 30°C. Cocoon laying was stimulated at 30°C, but fertility was significantly higher at 24°C. At the latter temperature, the development of the reproductive organs is higher and more stable.

Rodriguez Aragonés C. & Lapeire I.R. – Crecimiento en peso, longitud y número de segmentos de *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) a 24°C [Increase in weight, length and number of segments of *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) at 24°C].

Language : Spanish with English summary

Source : Revista Biología (Cuba), 1992, 6, 3: 215-221.

Address : Departamento de Zoología, Facultad de Biología, Universidad de La Habana, La Habana, Cuba.

Abstract : The specimens were reared on a mixture of rabbit manure and banana stalk. A total of 203 *Eudrilus eugeniae* were observed since 1 day old to 140 days. The results were lower at 24°C than at 30°C. Weight, length and number of segments are closely related during the juvenile and adult stages and they reach maximum values between 120 and 140 days after hatching.

Rodriguez Aragonés C. – Biomasa, estructura y densidad poblacional de *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) en un ciclo de producción con diferentes exposiciones de iluminación solar [Biomass, structure and population density of *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) during a production cycle with different exposures at solar light].

Language : Spanish with English summary

Source : Revista Biología (Cuba), 1996, 10: 51-61.

Address : Departamento de Biología Animal y Humana, Facultad de Biología, Universidad de La Habana, La Habana, Cuba.

Abstract : Comparative studies of populations of *Eudrilus eugeniae* (Kinberg, 1867) were made during 7 months. Density and biomass were the highest between the third and fourth months after the worms were sown. The juveniles showed as similar behavior as the total population. Oviposition showed an inverse relation with the maximum of density and biomass between the third and fourth months. An increase of the substrate temperature and a decrease of population density and biomass were provoked by direct exposure of the breeding at sun.

Sierra Padiz A. & Rodriguez Aragonés C. – Influencia de la alimentación en el desarrollo embrionario de *Eudrilus eugeniae* (Oligochaeta: Eudrilidae) [Influence of food on the embryonic development of *Eudrilus eugeniae* (Oligochaeta: Eudrilidae)].

Language : Spanish with English summary

Source : Revista Biología (Cuba), 1996, 10: 45-50.

Address : Departamento de Biología Animal y Humana, Facultad de Biología, Universidad de La Habana, La Habana, Cuba.

Abstract : The influence of food on body weight, volume and fertility of *Eudrilus eugeniae* cocoons as well as weight and length of

larvae were studied. Four types of food treatments were analyzed: pure rabbit manure, pure cow manure, a mixture of 50% of rabbit manure and 50% of banana talk and finally a mixture of 50% cow manure and 50% of banana talk. Earthworm cocoons showed bigger volumes in the treatments with pure food and higher weights in the treatments with rabbit manure. The average fertility was highest in the treatments with mixed foods and the weight of larvae was also highest. Biggest sizes of larvae were obtained with a mixture of cow manure and banana talk. It was concluded that rabbit manure is better than cow manure. Mixes of manure with little pieces of banana talk produced similar effect.

Rida A.M.M. Abdul & Bouche M.B. – Earthworm toxicology: from acute to chronic tests.

Language : English

Source : Soil Biol. Biochem, 1997, 29, 3/4: 699-703.

Address : Laboratoire de Zooécologie du Sol, CEFÉ, CNRS, BP5051 F-34033 Montpellier, France.

Abstract : There is a need to improve the standardization of laboratory tests on earthworm ecotoxicology, especially for chronic assays. This paper deals with these improvements and describes a new synthetic medium, the procedure to make chronic tests and the monitoring of changes resulting from interferences due to the medium and chemicals.

Spencer J.L.*, Chambers J.R. & Modler H.W. – Competitive exclusion of *Salmonella typhimurium* in broilers fed with vermicompost and complex carbohydrates.

Language : English

Source : Avian Pathology, 1998, 27, 244-249.

Address* : Canadian Food Inspection Agency, Animal Diseases Research Institute, 3851 Fallowfield Road, PO Box 11300 Station H, Nepean, Ontario, K2H 8P9, Canada.

Abstract : Vermicompost was produced by *Eisenia foetida* earthworms fed with fresh chicken faeces and sprinkled on the first feed of newly-hatched broiler chicks. Addition of seeder chicks that had been inoculated orally with *Salmonella typhimurium* was also tested. The treated groups were significantly more resistant to colonization by *S. typhimurium* than the untreated controls.

Janardan Singh – Habitat preferences of selected Indian earthworm species and their efficiency in reduction of organic materials.

Language : English

Source : Soil Biol. Biochem., 1997, 29, 3/4, 585-588.

Address : Department of Entomology, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, 221005, India.

Abstract : An extensive survey was conducted during 1992-1993 in the Varanasi region to identify the most common species of

earthworms which could be utilized for improving soil fertility and garbage decomposition. Eleven species of earthworms (*Metaphire posthuma*, *Lampito mauritii*, *Eutyphoeus incommodus*, *Eutyphoeus nicholsoni*, *Eutyphoeus waltoni*, *Octochaetona surensis*, *Ramiella bishambari*, *Drawida calebi*, *Glyphidrilus* sp., *Dichogaster bolau*i and *Amyntas morrisi*) were identified for the first time from this region. *D. bolau*i, *L. mauritii* and *E. incommodus* were identified as major potential species for utilization in soil fertility programmes.

Marinissen J.C.Y. & Didden W.A.M. – Influence of the enchytraeid worm *Buchholzia appendiculata* on aggregate formation and organic matter decomposition.

Language : English

Source : Soil Biol. Biochem., 1997, 29, 3/4, 387-390.

Address : Department of Soil Science and Geology, Agricultural University Wageningen, P.O. Box 37, 6700 AA, Wageningen, The Netherlands.

Abstract : Enchytraeid worms were used to transform a mixture of sandy loam subsoil mixed with ground wheat, with successful results in terms of worm coasts and improvement of the quality of the substrate.