



INNOVATION ALIMENTAIRE

L'entomophagie à travers l'art,
la culture, la science et les affaires
Espace pour la vie 26 au 28 août 2014



EATING INNOVATION

The Art, Culture, Science &
Business of Entomophagy
Montréal Space for Life Aug 26-28 2014

PROGRAMME

PROGRAM

eatinginnovation.com



CONTENT/ CONTENU

WELCOME/BIENVENUE

SCHEDULE/HORAIRE

EXHIBITION/EXPOSITION

EVENTS/ÉVÉNEMENTS

ABSTRACTS/LES RÉSUMÉS

MAP/CARTE

NOTES

WELCOME/BIENVENUE

FUTURE FOOD SALON GROUP

The Future Food Salon Group emerged from an interest to examine and taste what we may be eating in the future. Group members are committed to the idea that such an examination is best accomplished in the context of a diverse group of people including artists, inventors, chefs, investors and culture-thinkers. Motivating this impulse is the recognition that the current food system and choices are not sustainable for a growing global population and a finite planet.

The Salons were started in 2011 by Dr. Aruna Antonella Handa of Alimentary Initiatives to invite the general public to sample and discuss the future of food in an arts-soaked setting. In 2012, Dr. Elke Grenzer of the Culture of Cities Centre joined Handa to co-host the Salons. In addition to the directors, the current members of the Future Food Salon Group include Toronto-based inventor Jakub Dzamba of Third Millennium Farming, artist Han Zhang of Han-Studio, innovative cook Cookie Martinez, and from the United States, entomophagy expert David Gracer of Small Stock Food Strategies, Rhode Island.

The current Salon series features edible crickets, with Salons so far in Toronto, New York City and Austin, Texas. Group members both consult and educate on entomophagy using a variety of materials and methods, from cookery classes to lectures, from Salons to Tastings, from art installations to museum collections. The Eating Innovation conference is the latest initiative by the group and is undertaken in collaboration with the Montreal Space for Life Insectarium.

Le Future Food Salon Group (groupe de concertation sur l'alimentation du futur) est né de l'intérêt d'explorer et goûter ce qui pourrait être mangé dans le futur. Les membres du groupe s'accordent sur l'idée qu'une telle exploration s'accomplit mieux dans le contexte d'un groupe diversifié de gens, incluant des artistes, des inventeurs, des chefs, des investisseurs et des intellectuels. Ce qui motive cette impulsion réside dans la reconnaissance du fait que le système alimentaire et les choix actuels ne sont pas soutenables, face à une croissance globale des populations et une planète finie.

Les salons ont été lancés en 2011 par Mme Aruna Antonella Handa, (Ph. D.) d'Alimentary Initiatives afin d'inviter le public à déguster et discuter du futur de l'alimentation dans un cadre artistique. En 2012, Mme Elke Grenzer (Ph. D.) du Culture of Cities Centre s'est jointe à Mme Handa en tant que co-hôtesse des salons. Outre les administrateurs, les membres actuels du Future Food Salon Group comprennent l'inventeur de Toronto, M. Jakub Dzamba de Third Millennium Farming, l'artiste Mme Han Zhang de Han Studio, l'innovante cheffe cuisinière Mme Cookie Martinez, et provenant des États-Unis, l'expert en entomophagie, M. David Gracer de Small Stock Food Strategies, Rhode Island.

L'actuelle série de Salon porte sur les grillons comestibles; il y en a eu à Toronto, New York et Austin, au Texas, et nous voici maintenant à Montréal. Les membres du groupe font à la fois de la consultation et de l'éducation à l'entomophagie, en utilisant une variété de matériaux et de méthodes; des cours de cuisine aux conférences, des salons de dégustations à l'instauration d'exposition de collections muséales. La conférence d'Innovation alimentaire est la toute dernière initiative entreprise par le groupe, en collaboration avec l'Insectarium de Montréal/Espace pour la vie.

Welcome to Eating Innovation: the art, culture, science and business of entomophagy. Eating Innovation offers those of us working in this emerging sector, and those of us interested in its development, the opportunity to come together to strategize about how best to fill research gaps, to lay the foundations, both strong and agile, and to establish standards with a view to building a food sector that is at once emerging and yet ancient, regional and yet global: a business opportunity fueled by imagination, hard work and innovation.

The delegates to this conference come from far and near, across sectors, and include veterans of entomophagy and those who are just beginning to contemplate work in this arena.

Many who wanted to be here were unable to come, and it is our hope that as this sector grows, so too will the funds to ensure that everyone who wants to participate can do so. As the UN literature attests, over two billion people include insects in their diet. There is a wealth of knowledge about entomophagy and it is hoped that conferences like this one, and the one in the Netherlands in May of this year, can facilitate that exchange of knowledge. Our planet's future may depend upon it.

The Montreal Space for Life Insectarium's Director Anne Charpentier and her staff have been instrumental in helping to usher Eating Innovation from the idea that was seeded in the lead-up to the Future Food Salon in New York last summer, to the fruits that we are harvesting now in Montreal. We are grateful and thrilled to be in this amazing facility. We must also thank the chefs, the artists, the translators, volunteers and professionals of every description who have worked on this conference as an investment in a better future.

Engaging the public in this work is crucial to us and for that reason we have staged the Discovery Gallery of art and commerce, the Future Food Salon Montreal, and the Big Bang Bug Banquet. The planning of this conference is entirely delegate-led: Eating Innovation is your conference. Enjoy.

Elke Grenzer, PhD

Aruna Antonella Handa, PhD

Conference Convenors / Directrices de la conférence
Future Food Salon Group (Groupe de concertation sur l'alimentation du futur)

Bienvenue à Innovation alimentaire : l'entomophagie à travers l'art, la culture, la science et les affaires. Innovation alimentaire offre à ceux d'entre-nous qui œuvrons dans ce domaine en émergence, ainsi qu'à ceux intéressés à son expansion, l'opportunité de se rencontrer pour développer ensemble des stratégies afin de réduire les lacunes en recherche ; poser les fondations, à la fois solides et flexibles ; établir des normes ayant pour but d'instaurer un secteur alimentaire qui est à la fois en pleine émergence et de longue date, à la fois régional et mondialisé : Une opportunité d'entreprise, propulsé par l'imagination, le travail acharné et l'innovation.

Les délégués présents à cette conférence viennent d'ici et de loin, de toutes les disciplines et de tous les secteurs, incluant les pionniers de l'entomophagie ainsi que ceux qui commencent tout juste à envisager un travail dans le domaine. Plusieurs d'entre nous qui souhaitaient être ici aujourd'hui n'ont pu venir; nous espérons donc qu'au fur et à mesure que ce secteur se développera, nous réussirons à récolter des fonds pour s'assurer que tous ceux qui veulent y participer puissent le faire. Tel que la littérature de l'ONU en atteste, les insectes font partie du régime alimentaire de plus de deux milliards de personnes sur notre planète. Il y a là une richesse de savoir sur l'entomophagie et il est à espérer que des conférences comme celle-ci et celle qui a eu lieu aux Pays-Bas en mai dernier puissent faciliter cet échange de connaissances. L'avenir de notre planète pourrait en dépendre.

La directrice de l'Insectarium de Montréal / Espace pour la vie Mme Anne Charpentier et son équipe ont joué un rôle clé en facilitant la voie pour Innovation alimentaire, partant d'une idée semée l'été dernier dans le cadre des préparatifs du « Future Food Salon New York » jusqu'aux fruits que nous récoltons maintenant à Montréal. Nous sommes reconnaissants et ravis d'être dans ce merveilleux établissement. Nous voulons également remercier les chefs, les artistes, les traducteurs, les bénévoles et les professionnels de toutes sortes qui ont contribué à cette conférence en investissant dans un avenir meilleur.

Impliquer le public dans ce projet est essentiel pour nous et c'est pour cette raison que nous avons mis sur pied la Galerie des découvertes : l'entomophagie à travers l'art et le commerce, le Future Food Salon Montréal — Les insectes comestibles : dégustation, et le Banquet Bibitte Big Bang. Le contenu de cette conférence est entièrement entre vos mains, chers délégués : Innovation alimentaire, c'est votre conférence. Profitez-en!

WELCOME/BIENVENUE

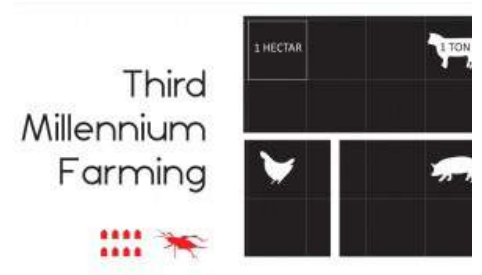


Espace pour la vie regroupe sur un même site le Jardin botanique, l’Insectarium, le Biodôme et le Planétarium Rio Tinto Alcan. Ces quatre institutions prestigieuses de la Ville de Montréal, visitées par près de 2 millions de visiteurs chaque année, forment le plus important complexe en sciences de la nature au Canada. À lui seul, l’Insectarium de Montréal est parmi les plus importants musées entièrement consacrés aux insectes en Amérique du Nord. Il abrite une collection de quelque 250 000 spécimens d’insectes naturalisés ou vivants, une fourmilière et plusieurs autres vivariums captivants.

Montréal Space for Life consists of the Botanical Garden, Insectarium, Biodôme and Rio Tinto Alcan Planetarium, making it the largest natural science complex in Canada. Together, these four prestigious municipal institutions delight nearly 2 million visitors every year. The Insectarium, for instance, is one of the leading museums dedicated to insects in North America. It houses a collection of some 250,000 naturalized and live specimens, including an ant colony and many other fascinating vivariums.

WELCOME/BIENVENUE

FUTURE FOOD SALON GROUP





ENTISULT ASSOCIATES, INC.



Chef David Ali Garcia



HOTEL



Journal of
Insects
as **Food and Feed**

edited by **Alan Louey Yen**

 **Wageningen Academic Publishers**

www.WageningenAcademic.com/JIFF

SCHEDULE/HORAIRE

1

08/26/2014

9:00 - 10:30 AM

**Registration and Continental Breakfast /
Inscription et petit déjeuner continental**

Scorpion Room (cafeteria), Reception Hall, Botanical
Garden / Salle de Scorpion (boîte à lunch), Complexe
d'accueil du Jardin Botanique

10:30 - 10:45 AM

**MORNING PLENARY SESSION 1
PLÉNIÈRE DE LA 1IÈRE MATINÉE**

Auditorium Henry-Teuscher /
Henry-Teuscher Theatre

**Welcome & Introduction to Conference
Mot de bienvenue**

Dr. Aruna Antonella Handa

Founder, Alimentary Initiatives; Director, Future Food
Salon Group, Conference Convenor, Toronto, Canada

Mme Anne Charpentier

Directrice/Director, Insectarium, Espace pour la vie, Mon-
tréal, Canada

M. Charles-Mathieu Brunelle

Directeur/Director, Espace pour la vie, Montréal, Canada

Mr. David Gracer

Founder, Small Stock Food Strategies; Future Food Salon
Group, Providence, Rhode Island, USA

Dr. Elke Grenzer

Director, Culture of Cities Centre; Future Food Salon
Group, Conference Convenor, Toronto, Canada

10:45 - 11:15 AM

Edible Insects: Disruptive Innovation

Dr. Aruna Antonella Handa

Conference Convenor

11:15 - 12:00 PM

Keynote Address

Discours d'ouverture

Introduced by / Présenté par Mr. Jakub Dzamba

President, Third Millennium Farming; Future Food Salon
Group, Toronto, Canada; PhD Candidate, School of Archi-
tecture, McGill University, Montreal, Canada

**Mini-Documentary: Canadian Broadcasting Corporation,
1986. (v.a.)**

**Food Security Through Entotechnology: What Will It
Take?**

Professor Robert Kok, Emeritus Professor of Engineering
Department of Bioresource Engineering, Faculty of Agricul-
tural and Environmental Sciences, Macdonald Campus of
McGill University, Ste-Anne-de-Bellevue, Canada

12:00 - 1:00 PM

**DISCOVERY GALLERY - "TRACES EXHIBITION"
OPENING**

**GALERIE DES DÉCOUVERTES - OUVERTURE DE
L'EXPOSITION "TRACES"**

Complexe d'accueil Jardin Botanique /
Reception Hall, Botanical Garden

Ms. Han Zhang (MA)

www.han-studio.com

Han Studio, Artistic Director, Future Food Salon Group,
Toronto, Canada; PhD Candidate Communication and Cul-
ture, York University, Canada

Ms. Marjan Verstappen (MFA)

www.marjanverstappen.com

Artist, Toronto, Canada

Mme Dominique Ferraton (BFA)

www.dominiqueferraton.ca

Artist, Wishart, Saskatchewan, Canada

Mr. David Gracer (MA)

www.smallstockfoods.com

Gracer Entomophagy Collection, Founder, Small Stock Food
Strategies; Future Food Salon Group, Providence, Rhode
Island, USA

1

08/26/2014

1:00 - 2:00 PM LUNCH / DÉJEUNER

2:00 - 3:30 PM

Session 1 A: Palatability and Disgust / Goûts et dégoût

Salle de classe du Centre sur la Biodiversité /

Lecture Hall, Biodiversity Centre

Moderator/Modérateur: Mr. David Gracer

Hospitality and edible insects: welcoming the world to our table

Dr. John Wood, Dean of Faculty of Natural Sciences, Professor, Biology & Environmental Studies, The King's University, Edmonton, Alberta, Canada & Dr. Heather Looy, Professor of Psychology, The King's University, Edmonton, Alberta, Canada

Consumer acceptance of insect-based products

Mr. Rudy Noël Caparros Megido et al., Researcher, Faculty of Gembloux Agro-Bio Tech, University of Liège, Gembloux, Namur, Belgium

Tasty or taboo: identifying cultural concerns about entomophagy as a new direction for a hungry planet

Mr. Wayne M. Radford, Founder, New Colony Farms, Montreal, Canada

Session 1 B: Product Launches /

Lancements de produits

Amphithéâtre du Centre sur la Biodiversité /

Amphitheatre, Biodiversity Centre

Moderator/Modérateur: Dr. Aruna Antonella Handa

Third Millennium Farming

Mr. Jakub Dzamba, President, Third Millennium Farming; Future Food Salon Group, Toronto, Canada

Big Cricket Farms

Mr. Kevin Bachhuber, Founder, Big Cricket Farms, Youngstown, Ohio, USA

3:30 - 4:00 PM BREAK / PAUSE

4:00 - 5:30 PM

**Session 2 A: Entomophagy Education /
L'éducation à l'entomophagie**

*Amphithéâtre du Centre sur la Biodiversité /
Amphitheatre, Biodiversity Centre*

Moderator/Modérateur: Mr. Lou Sorkin

Integrating entomophagy into existing sustainable agriculture education programs at the university and community level

Dr. Donald Sudbrink, Jr. Chair, Department of Agriculture, Austin Peay State University, Clarksville, Tennessee, USA & Dr. Amy M. Wright, Department of Languages and Literature, Austin Peay State University, Clarksville, Tennessee, USA

Perceptions of edible insects and food neophobias

Dr. Marianne Shockley, Department of Entomology, University of Georgia, Athens, Georgia, USA

L'entomophagie et l'éducation / AnimaNature

Étienne Normandin, Fondateur, Président, AnimaNature, Montréal, Canada

**Session 2 B: Recipes & Culinary Innovation
Round Table/ Table ronde sur l'innovation culinaire et des recettes**

*Salle de classe du Centre sur la Biodiversité /
Lecture Hall, Biodiversity Centre*

Moderator/Modérateur: Dr. Elke Grenzer

Natalia Martinez, Owner, Cookie Martinez; Future Food Salon Group, Toronto, Canada

6:00 - 8:00 PM

**WELCOME RECEPTION: WINE & CHEESE
(INSECTARIUM)**

**RÉCEPTION: VINS ET FROMAGES
(INSECTARIUM)**

SCHEDULE/HORAIRE

2

08/27/2014

9:00 - 10:00 AM

**Registration and Continental Breakfast /
Inscription et petit déjeuner continental**

Scorpion Room (cafeteria), Reception Hall, Botanical Garden / Salle de Scorpion (boîte à lunch), Complexe d'accueil du Jardin Botanique

10:00 - 11:20 AM

**MORNING PLENARY SESSION 2
PLÉNIÈRE DE LA 2IÈME MATINÉE**

Auditorium Henry-Teuscher / Henry-Teuscher Theatre

Introduced by / Présenté par Mr. David Gracer

Identifying Research Gaps /

Identifier les lacunes en recherche

Dr. Marianne Shockley, Department of Entomology, University of Georgia, Athens, Georgia, USA & Dr. Saliou Niassy, Postdoctoral Fellow, African Insect Science for Food and Health, Nairobi, Kenya

11:20 - 11:35 AM BREAK / PAUSE

11:35 - 1:00 PM

**Session 3 A: Public Culture & Taste /
Culture publique et goût**

Auditorium Henry-Teuscher / Henry-Teuscher Theatre

Moderator/Modérateur: TBA

Cultivating an appetite: the experience of the Future Food Salons

Dr. Elke Grenzer, Director, Culture of Cities Centre; Future Food Salon Group, Toronto, Canada

100th Anniversary of The New York Entomological Society

Mr. Louis N. Sorkin, BCE, Entomologist, Arachnologist, Division of Invertebrate Zoology, American Museum of Natural History, New York, USA

Faire évoluer les perceptions de l'entomophagie: le rôle des musées

Mme Anne Charpentier, Directrice, Insectarium, Espace pour la vie, Montréal, Canada

**Session 3 B: Edible Insects & the Americas/
Les insectes comestibles et les Amériques**

Amphithéâtre du Centre sur la Biodiversité / Amphitheatre, Biodiversity Centre

Moderator/Modérateur: Mr. David Gracer

Rustling up some grub: a model for entomophagy education

Ms. Kiah Emily Brasch, Educator, Norman Bird Sanctuary, Newport, Rhode Island, USA

Taste and tradition of edible insects in Mexico

Mr. Ricardo Redondo, President, Chilipines, Mexico D.F., Mexico

Edible insects and New England resilience

Ms. Samara Brock, PhD Candidate, School of Forestry & Environmental Studies, Yale University, New Haven, Connecticut, USA & Mr. Mark Bomford, Director Yale Sustainable Food Project, Yale University, New Haven, Connecticut, USA

1:00 - 2:00 PM LUNCH / DÉJEUNER

2:00 - 3:30 PM

**Session 4 A: Breeding and Feeding /
Reproduction et alimentation**

Salle de classe du Centre sur la Biodiversité / Lecture Hall, Biodiversity Centre

Moderator/Modérateur: Mr. David Gracer

Study of the potentiality of insect breeding system for human food in Cambodia (Ratanakiri Province)

Mr. Rudy Noël Caparros Megido et al., Researcher, Faculty of Gembloux Agro-Bio Tech, University of Liège, Gembloux, Belgium

**Les potentiels insectes alimentaires d'Afrique Francophone /
The potential of edible insects in French speaking Africa**

M. Séverin Tchibozo, Directeur, Centre de Recherche pour la Gestion de la Biodiversité (CRGB), Cotonou, Benin

Feed utilization by insects

Mr. Dennis G.A.B. Oonincx et al., Researcher, Laboratory of Entomology, Wageningen University, The Netherlands

2

08/27/2014

Session 4 B: Regional Insect Eating / La consommation d'insectes dans le monde

Amphithéâtre du Centre sur la Biodiversité /
Amphitheatre, Biodiversity Centre

Moderator/Modérateur: Mr. André Luis Marín

Preferred edible arthropods in rural areas of Madagascar
Ms. Maminirina Randrianandrasana et al., Department of
Entomology, University of Illinois at Urbana-Champaign,
Urbana, Illinois, USA

**Entomophagy and evolution: eating insects past, present
and future**

Professor Julie Lesnik, Department of Anthropology,
Wayne State University, Detroit, Michigan, USA

Edible insects in southeastern Nigeria

Dr. Cordelia Ifeyinwa Ebenebe, Nnamdi Azikiwe Univer-
sity, Akwa, Nigeria

3:30 - 4:00 PM BREAK / PAUSE

4:00 - 5:30 PM

Session 5 A: Marketing Edible Insects I / La commercialisation des insectes comestibles I

Amphithéâtre du Centre sur la Biodiversité /
Amphitheatre, Biodiversity Centre

Moderator/Modérateur: M. Julien Baylet

L'entomophagie au Mexique

Mme Sophie Coulombe, Présidente, Gourmex Inc., Mon-
tréal, Canada

**Démarrer une entreprise en entomophagie, l'expérience
de uKa protéine**

M. Alain Léon, Adjoint, uKa protéine, Montréal, Canada
Mme Marie-Loup Tremblay, Présidente et fondatrice, uKa
protéine, Montréal, Canada

**Innovation & approvisionnement en entomoculture: les
défis d'un avenir**

Mme Chanel Boucher, Fondatrice, l'Insecterie; Notre-
Dame-de-la-Merci, Québec; Candidat au Doctorat sociolo-
gie; Université d'Ottawa, Canada

Session 5 B: Marketing Edible Insects II/ La commercialisation des insectes comestibles II

Salle de classe du Centre sur la Biodiversité /
Lecture Hall, Biodiversity Centre

Moderator/Modérateur: TBA

**Commercialisation of *Rhynchophorus* species larvae
at Mvog-Mbi Market in Yaoundé, Cameroon**

Mr. Saliou Niassy, Post-doctoral fellow, African Insect
Science for Food and Health, Nairobi, Kenya

Cultivating edible insects in Mexico

Mr. Ricardo Redondo, President, Chilipines, Mexico
D.F., Mexico

7:00 - 10:00 PM

**FUTURE FOOD SALON MONTREAL /
SALON FUTURE FOOD MONTRÉAL
LES INSECTES COMESTIBLES: DÉGUSTATION
Chapiteau Insectarium / Insectarium Tent**

Big Cricket Farms Youngstown, Ohio, USA

Cookie Martinez Future Food Salon Group, Toronto,
Canada

Cook Caravan Montréal, Canada

David Ali Garcia chef de Limon, Montréal, Canada

Gourmex Inc. Montréal, Canada

Mangeons Montréal Montréal, Canada

Micronutris Toulouse, France

uKa Protéine Montréal, Canada

Jakub Dzamba Third Millennium Farming, Future
Food Salon Group, Toronto, Canada

Marjan Verstappen Artwork "Pollinate/Illuminate",
Toronto, Canada

David Gracer Small Stock Food Strategies, Providence,
Rhode Island, USA; Future Food Salon Group

Hosts: **Aruna Antonella Handa** and **Elke Grenzer**,
Future Food Salon Group

SCHEDULE/HORAIRE

3

08/28/2014

9:00 - 10:00 AM

**Registration and Continental Breakfast /
Inscription et petit déjeuner continental**

Scorpion Room (cafeteria), Reception Hall Botanical
Garden / Salle de Scorpion (boîte à lunch), Complexe
d'accueil du Jardin Botanique

10:00 - 11:20 AM

**MORNING PLENARY SESSION 3
PLÉNIÈRE DE LA 3IÈME MATINÉE**

Auditorium Henry-Teuscher / Henry-Teuscher Theatre

**Funding & Financing Strategies /
Business & Innovation**

**Strategies de financement /
Entrepreneuriat et innovation**

Introduced by / Présenté par Kevin Bachhuber

Mr. Andrew Brentano, Co-founder and Chief Operating Of-
ficer, Tiny Farms, Silicon Valley, USA

Ms. Jena Brentano, Co-founder, Chief Financial Officer, Tiny
Farms, Silicon Valley, USA

11:20 - 11:35 AM BREAK / PAUSE

11:35 - 1:00 PM

**Session 6 A: Transcultural Entomophagy /
L'entomophagie transculturelle**

Auditorium Henry-Teuscher / Henry-Teuscher Theatre

Moderator/Modérateur: Dr. Elke Grenzer

Lao expats' loyalty to entomophagy in New York City

Mr. André Luis Marín, City University of New York, New
York, USA

Entomophagy, identity and evolution

Mr. David Gracer, Founder, Small Stock Food Strategies,
Providence, Rhode Island, USA

**Quand la biodiversité entomologique devient une
source d'aliments**

Dr. Taofic Alabi, Unité d'Entomologie Fonctionnelle et
Evolutive Gembloux Agro Bio Tech, Université de Liège,
Namur, Belgium

**Session 6 B: Farming Edible Insects /
Élever des insectes comestibles**

Amphithéâtre du Centre sur la Biodiversité /
Amphitheatre, Biodiversity Centre

**Moderator/Modérateur: Dr. Aruna Antonella
Handa**

Catalyzing the economy with edible bugs

Mr. Kevin Bachhuber, Founder, Big Cricket Farms,
Youngstown, Ohio, USA

**Restructuring urban bio-wastes as inputs for urban
micro-crop and micro-livestock farming operations**

Mr. Jakub Dzamba, President, Third Millennium Farming;
Future Food Salon Group, Toronto, Canada; PhD Candi-
date, School of Architecture, McGill University

**Tackling health challenges in production and agri-food
processing of edible insects for food: the example of
micronutris**

Mr. Cédric Auriol, President, Micronutris, Toulouse,
France

1:00 - 2:00 PM LUNCH / DÉJEUNER

2:00 - 3:30 PM

**Session 7 A: ROUND TABLE ENTOMOPHAGY
AND THE ACADEMY / TABLE RONDE SUR LE
DÉMARRAGE D'ENTREPRISES AUTOUR DES
INSECTES COMESTIBLES**

Salle de classe du Centre sur la Biodiversité /
Lecture Hall, Biodiversity Centre

Introduced by / Présenté par TBA

3

08/28/2014

**Session 7 B: ROUND TABLE INSECT START-UPS
/ TABLE RONDE SUR L'ENTOMOPHAGIE ET LE
MILIEU ACADÉMIQUE.**

Amphithéâtre du Centre sur la Biodiversité /
Amphitheatre, Biodiversity Centre

Introduced by / Présenté par TBA

3:30 - 4:00 PM BREAK / PAUSE

4:00 - 5:30 PM

**Session 8: Closing Plenary: Planning Conference
on Edible Insects 2015-2016**

**Plénière de clôture: planifier la conférence sur les
Insectes comestibles 2015-2016**

Auditorium Henry-Teuscher / Henry-Teuscher
Theatre

Introduced by / Présenté par Dr. Aruna Antonella
Handa and Elke Grenzer

7:00 - 10:00 PM

BIG BANG BUG BANQUET

BANQUET BIBITTE BIG BANG

Chapiteau Insectarium / Insectarium Tent

**A banquet of 9 courses of edible insects, with each
course inspired by the planets of our solar system
(including the Planetoid Pluto)**

**Un banquet 9 services à base d'insectes comes-
tibles inspirés par notre système solaire**

Gourmex Inc. Montréal, Canada

Cookie Martinez Toronto, Canada

Cook Caravan Montréal, Canada

David Ali Garcia chef de Limon, Montréal, Canada

Mangeons Montréal Montréal, Canada

Micronutris Toulouse, France

Small Stock Food Strategies Providence, Rhode
Island, USA

Hosts: Aruna Antonella Handa and Elke Grenzer,
Future Food Salon Group

EVENTS/ÉVÉNEMENTS



Discovery Gallery

The Discovery Gallery features art, artifacts and a small market of edible insects, bridging the work of the Eating Innovation conference and its delegates with the general public. We invite reflections on entomophagy inspired by sculpture, prints, objects and innovative insect products.

We invite visitors to view the Traces Exhibition curated by Han Zhang, Future Food Salon Art Director, and to experience the Canadian premier of the Gracer Entomophagy Collection. In addition, visitors can explore (and purchase) cricket insect farms and buy edible insect products and ingredients to cook at home.

Free Admission. Open Aug 26-28, 9-5 daily.

Galerie des découvertes

La Galerie des découvertes, rassemblant art, artefacts ainsi qu'un petit marché d'insectes comestibles, fait le pont entre le travail de la conférence Innovation alimentaire et celui de ses délégués, auprès du grand public. Ainsi nous suscitons les réflexions sur l'entomophagie, inspirées par des œuvres d'art, des artefacts et d'innovants produits à base d'insectes.

Nous invitons les visiteurs à aller voir l'exposition « Traces » ,sous la direction de Han Zhang, curateur et designer du « Future Food Salon Group ». Expérimentez, en grande première canadienne, la collection « Gracer Entomophagy ». De plus, les visiteurs peuvent découvrir (et acheter) sur place des fermes d'insectes (grillons) ainsi que se procurer des produits aux insectes comestibles et autres ingrédients, à cuisiner à la maison.

Gratuit. Ouvert du 26 au 28 août, de 9h à 17h

Exhibition/Exposition

Han Zhang & Marjan Verstappen
Dominique Ferraton
Gracer Entomophagy Collection

Commerce

Big Cricket Farms, Youngstown, Ohio, USA
Future Food Salon Group, Canada / US
Gourmex Inc., Montréal
Micronutris, Toulouse, France
Third Millennium Farming, Toronto
AnimaNature (mardi seulement), Montréal
uKa protéine (mercredi seulement), Montréal



CHRYSALIS CHRYSALIDE

Marjan Verstappen & Han Zhang
Handmade Japanese Paper
Papier japonais fait main
78" x 23" x 27"

History, a mark of where a creature has taken flight, changed its shape, completed a stage of metamorphosis. We show where a huge bodied insect has shed its cocoon, launching its new body into the air. After the flight, a remnant of the old body remains on the ground. The emptiness of the void allows space for contemplation about the lived experience of the insect before and after its body changed. These traces capture the spatial and temporal qualities of metamorphosis. The chrysalis is a site of phenomenally complex biological processes that create catharsis within its walls. The mix of ideas at this conference behaves as a catalyst for a similar transformation. The heady brew of ideas and practices within the chrysalis will bring forth a stunning new creature.

L'Histoire, cette trace dans l'espace-temps où une créature a vu le jour, s'est transformée, pour enfin se métamorphoser. Nous montrons là où un énorme insecte a extirpé son nouveau corps, hors de son cocon pour se propulser vers le ciel. Après l'envol, les vestiges de son précédent corps demeurent au sol. La vacuité du néant laisse tout l'espace à la contemplation de l'expérience vivante d'un insecte, pendant et après que son corps se soit transformé. Ces rémanences capturent les qualités spatiales et temporelles de la métamorphose. La chrysalide est le lieu d'un processus biologique d'une phénoménale complexité, provoquant une catharsis entre ces murs. L'amalgame des idées de cette conférence agit tel le catalyseur d'une transformation similaire. L'enivrant mélange d'idées et de pratiques à l'intérieur de la chrysalide donnera naissance à une nouvelle créature étonnante!



FIELD GUIDE TO MISSING PIECES

Dominique Ferraton

Inkjet prints on recycled paper

Impressions au jet d'encre sur papier recyclé
8" x 10" each / chacune

“The more closely I look, the more I doubt that there is a single whole, unblemished leaf left on the bush. I go out again and examine the leaves one by one [...] In the blue light I see scratched and peeled stems, leaves that are half-eaten, rusted, blighted, blistered, mined, snapped, smutted, pitted, puffed, sawed, bored, and rucked. Where have I been all summer while the world has been eaten?”

Tel qu'observé par Annie Dillard dans “Pilgrim at Tinker Creek”, chaque être vivant consacre tout son temps sur terre à assurer sa propre survie, malgré (et grâce à) tous les autres qui tentent de faire la même chose. Chez les êtres humains, cet instinct peut avoir des effets très néfastes, mais ce n'est pas inévitable. Tous les petits trous dans chacune des feuilles créés par les insectes et autres créatures affamées ne détruisent pas l'arbre – bientôt, les feuilles tombent et au printemps, l'arbre s'épanouit à nouveau, recouvert de feuilles intactes. Ce projet transforme des feuilles matures en pochoirs, traçant seulement les trous et morceaux manquants. Les taches d'encre sur la page sont des fragments d'un casse-tête ambigu qui démontre l'harmonie involontaire des formes aléatoires observées en milieu naturel, tout en contemplant la dynamique entre ceux qui mangent et ceux qui se font manger.



**THE GRACER ENTOMOPHAGY
COLLECTION
LA COLLECTION
« GRACER ENTOMOPHAGY »**

The Gracer Entomophagy Collection assembles rare artifacts, food stuffs, labels, publications, posters and even naturalized insects to detail the story of entomophagy with a focus on the history, regional distribution and traditions of insect consumption.

Including objects from North America and around the world, this one-of-a-kind collection illuminates intriguing political and existential themes as well as entomological and anthropological elements.

Posters from various époques, food stuffs including rare edible insects, and surprising items like a can of ants manufactured in the USA, dating from the 1950s and made by Reese's Finer Foods, as well as rare out-of-print books, and even confectionary count among the eighty items in the collection.

The Discovery Gallery of the Eating Innovation conference represents the Canadian debut of a selection from the Gracer Entomophagy Collection.

La collection « Gracer Entomophagy » assemble des objets rares, des produits alimentaires, des étiquettes, des publications, des affiches, et des insectes naturalisés. Ensemble la collection raconte l'histoire de l'entomophagie, en portant l'emphase sur la distribution et les traditions régionales de la consommation d'insectes.

Comprenant des objets de l'Amérique du Nord et partout dans le monde, la collection met en lumière des thèmes politiques et existentiels intéressants ainsi que des éléments entomologiques et anthropologiques.

Des affiches de diverses époques, des denrées alimentaires, y compris des insectes comestibles rares et des objets surprenants comme une boîte de conserve de fourmis fabriquées aux Etats-Unis, datant des années 1950 et produite par Finer Foods Reese ; de rares livres épuisés, et des confiseries sont parmi les 80 éléments de la collection.

La Galerie des découvertes de la conférence Innovation alimentaire présente la première canadienne de la collection « Gracer Entomophagy ».

Les insectes comestibles: dégustation

Salon Future Food Montréal

VENEZ GOÛTER DES INSECTES

CANAPÉS D'INSECTES COMESTIBLES • COCKTAILS • PARTICIPEZ AU CONCOURS DE COSTUME FUTURISTE



MERCREDI LE 27 AOÛT 2014 19H-22H



OÙ: INSECTARIUM ESPACE POUR LA VIE
4581 RUE SHERBROOKE EST, MÉTRO PIE-IX

COÛT: \$25 DÉGUSTATION COMPRISE

Billets vendus à l'avance seulement sur <http://futurefoodsalonmontreal.eventbrite.ca>
Bar payant. Aucune vente de billets à la porte.

COMMANDITAIRES

COOKIE MARTINEZ
DAVID ALI GARCIA, LIMON, MONTRÉAL
HAN STUDIO
THIRD MILLENNIUM FARMING
BIG CRICKET FARMS
SMALL STOCK FOOD STRATEGIES
COOK CARAVAN

CULTURE OF CITIES CENTRE
ALIMENTARY INITIATIVES
MANGEONS MONTRÉAL
GOURMEX INC.
uKa protéine, MONTRÉAL
MICRONUTRIS, TOULOUSE

EN COLLABORATION AVEC



Future Food Salon Montreal

The Future Food Salon series is designed to lay the foundation for discussion and action in identifying, disseminating and celebrating innovative options for feeding current and future generations. We invite artists, philosophers, chefs and inventors, in short anyone whose currency is imagination, to join with us in talking about and tasting the food of the future. The creative space of the Salons invites spontaneous connections fusing the cutting edges of technological research, food, business and the arts.

The current series is about edible insects, especially crickets. The Cricket Salons have taken place in Toronto, New York City, Austin, and Montreal.

Salon Future Food Montréal: Les insectes comestibles : dégustation

La série « Future Food Salon » est conçue pour poser les bases de discussion et d'action dans l'identification, la diffusion et la célébration des options novatrices pour nourrir les générations actuelles et futures. Nous invitons des artistes, des philosophes, des chefs et des inventeurs, bref tous ceux dont la monnaie est l'imagination, à se joindre à nous, en discutant et dégustant la nourriture de l'avenir. L'espace de création des salons invite aux connexions spontanées alliant les frontières de la recherche technologique, l'alimentation, l'entrepreneuriat et les arts.

La série actuelle porte sur les insectes comestibles, en particulier les grillons. L'actuelle série de salons portant sur les grillons comestibles a eu lieu à Toronto, Manhattan, Austin et maintenant, Montréal.

Food / Dégustation

Cookie Martinez, Future Food Salon, Toronto
Cook Caravan, Montréal
David Ali Garcia, chef de Limon, Montréal
uKa protéine, Montréal
Micronutris, Toulouse

Exhibition / Exposition

Pollinate/Illuminate, Marjan Verstappen, Toronto
Cricket Reactors, Circle Chirp Farms, Third Millennium Farming, Toronto

Talk / Communication

Jakub Dzamba, Third Millennium Farms, Toronto

Sponsors / Commanditaires

Big Cricket Farms Youngstown, Ohio, USA
Cookie Martinez Toronto, Canada
Cook Caravan Montréal, Canada
David Ali Garcia chef de Limon, Montréal, Canada
Gourmex Inc. Montréal, Canada
Mangeons Montréal Montréal, Canada
Micronutris Toulouse, France
uKa Protéine Montréal, Canada
Small Stock Food Strategies Rhode Island, USA

Hosts: **Aruna Antonella Handa** and **Elke Grenzer**,
Future Food Salon Group

Banquet Bibitte Big Bang

Un banquet 9 services à base d'insectes comestibles
inspirés par notre système solaire

Jeudi, le 28 août 2014 19 h - 22 h

Cookie Martinez, Toronto | David Ali Garcia of Limon Montréal



OÙ: INSECTARIUM, ESPACE POUR LA VIE. 4581 RUE SHERBROOKE EST, MÉTRO PIE-IX, MONTRÉAL
COÛT: \$150 (cocktails, vins et cidres inclus)

Billets vendus à l'avance seulement sur <http://banquetbibittebigbang.eventbrite.ca>

COMMANDITAIRES

COOKIE MARTINEZ
DAVID ALI GARCIA, LIMON, MONTRÉAL
HAN STUDIO
THIRD MILLENNIUM FARMING
BIG CRICKET FARMS
SMALL STOCK FOOD STRATEGIES
COOK CARAVAN

CULTURE OF CITIES CENTRE
ALIMENTARY INITIATIVES
MANGEONS MONTRÉAL
GOURMEX INC.
HOTEL 10
MICRONUTRIS, TOULOUSE

EN COLLABORATION AVEC



Big Bang Bug Banquet

The Big Bang Bug Banquet invites you to imagine a dinner in space featuring insect delicacies. The qualities of insects that make them especially attractive for eating on earth—they use little space, water, have a great feed conversion rate, and produce few emissions—are even more vital in the confines of space vehicles and settlements.

A Future Food Salon Group first, this nine course sit-down dinner features edible insect dishes inspired by the planets of our solar system. Drawing on historic records of similar banquets such as the 100th anniversary dinner of the New York Entomological Society and the tastings and dinners at the Montreal Insectarium, the Big Bang Bug Banquet imagines the dinner party in space, fuelling imagination for the future with research of the past.

Banquet Bibitte Big Bang

Le Banquet Bibitte Big Bang vous invite à imaginer un repas dans l'espace mettant en vedette des délices aux insectes. Les qualités qui rendent les insectes particulièrement intéressants en tant qu'aliment sur Terre—they ne requièrent que peu d'espace, peu d'eau, ont un taux hors du commun de conversion alimentaire et ne produisent que très peu d'émissions polluantes—sont encore plus essentielles dans l'espace restreint d'un véhicule spatial.

Un dîner dans l'espace, de neuf services, tel celui du Future Food Salon Group (groupe de concertation sur l'alimentation du futur), évite d'avoir recours à l'élevage terrestre de bétail en présentant dans chaque plat inspiré d'une des planètes de notre système solaire, des insectes comestibles. À partir d'archives historiques portant sur des banquets similaires, tel que le dîner du 100e anniversaire de la Société entomologique de New York, ainsi que celles des dégustations et dîners de l'Insectarium de Montréal/Espace pour la vie, le Banquet Bibitte Big Bang imagine le dîner de l'avenir dans l'espace, tout en alimentant l'imagination grâce à la recherche du passé.

Food / Réalisation culinaire

Cookie Martinez, Future Food Salon, Toronto
David Ali Garcia, chef de Limon, Montréal
uKa protéine, Montréal

Sponsors / Commanditaires

Gourmex Inc. Montréal, Canada
Cookie Martinez Toronto, Canada
David Ali Garcia chef de Limon, Montréal, Canada
Mangeons Montréal Montréal, Canada
Micronutris Toulouse, France
Small Stock Food Strategies Rhode Island, USA

Hosts: **Aruna Antonella Handa** and **Elke Grenzer**,
Future Food Salon Group

ABSTRACTS/LES RÉSUMÉS

Introduction

Edible Insects: Disruptive Innovation
Aruna Antonella Handa

The global food system is broken. Our biggest problem is distribution. We produce more than enough calories for every person on the planet; yet, our distribution is such that we waste vast quantities both pre- and post-consumer. The result? Soaring rates of obesity and persistent rates of starvation: two sides of a single malnutrition coin. The edible insect sector in its infant stages in the West and well established, but largely unregulated, and part of the unofficial economy in many parts of the world, offers an opportunity to build a better food system. Small, urban insect farms integrated into the fabric of the city, provide a way to decrease dependence upon fossil fuels for food delivery, improve distribution by shortening the food's journey, and increase national food sovereignty by decreasing dependence on protein imports.

Plenary Speaker L'allocation d'ouverture

Food Security Through Entotechnology:
What Will It Take?
Robert Kok

There are presently about seven billion people alive and at least one billion of them would be in better health if the protein content of their diet were increased. Insects can be used to cheaply convert low-cost substrates into high-quality animal protein and other food ingredients in a relatively low-impact manner. If done properly, insect-derived foods can be made culturally acceptable to a wide variety of peoples. The technological methods, organisms, procedures, marketing approaches, etc, are here collectively referred to as "Entotechnology". To influence the human food security situation in a significant way, insect culture would need to be undertaken on a rather massive scale.

What will it take to develop and implement entotechnology so that it can make a significant impact on the food security issue? Some aspects that will need to be dealt with are: identification and development of organism/feed/product combinations; improvement of food organisms through breeding; equipment and

process development for "farming"; processing of organisms into food ingredients; creation of various foods products from insect-derived ingredients; marketing and consumer acceptance of such products; safety and risk assessment throughout the entire production/marketing chain; financial analysis. Overall, entotechnology will be useful for dealing with food security only if wholesome, safe foods can be developed that are attractive to consumers. The foods will have to be produced ethically, at a moderate cost, with low-impact, stable processes in facilities that can generate substantial return on investment. What will it take to put all that together?

Session 1 A: Palatability and Disgust Goûts et dégoûts

Hospitality and Edible Insects: Welcoming the
World to Our Table
John R. Wood & Heather Looy

Food choices are deeply and uniquely human activities. Yet, the social sense of food has been absent in food insect discussions. Entomophagy is a singularly off-putting term! We need to create a language of social relations to surround insect food eating that will engage the public. The sense of taste is mediated socially. We seal our most important social relationships, from weddings to contracts, over food. Food insects are an important part of that social lubrication. Insect meat is already part of the economic fabric of community life. Value-added activities are now being associated with food insects, as the Hult Prize in social entrepreneurship illustrates. Appeals to safety, nutrition, or economic benefit may be insufficient to break down barriers. To effectively promote insects as human food we must attend to the ways in which food is an expression of cultural and personal identity. Food insects must become a means of creating and sustaining community, and be seen as an expression of hospitality—welcoming the stranger.

Consumer Acceptance of Insect-Based Products
Rudy Caparros Megido, Chloé Gierts, Christophe Blecker, Yves Brostaux, Clément Nieus, Sabine Danthine, Aman Paul, Éric Haubruge, Taofic Alabi, Frédéric Francis

In this study, sociocultural and food formulation aspects related to edible insects were examined with

Belgian consumers. Hedonic tests were conducted to assess the acceptability of insect-based burgers and insect-based breads. Four burgers (beef, lentil, beef/insect and lentil/insect) and two breads (two mixed flour breads with one mentioned with insects while it did not actually contain any) were presented to the participant. The results showed that differences in taste were noticed between a beef and a beef/insect burger and between a lentil and a lentil/insect burger and that overall “insect bread” was preferred to classical bread without insect flour. These results confirm that not only in addition to shape and appearance, popularization and spreading information are key conditions for accepting insect products. If insects will be consumed as a preferred food product in the future, they should be invisible and associated with familiar flavors.

Tasty or Taboo: Identifying Cultural Concerns and Exploring New Directions for a Hungry Planet
Wayne Radford

There are plenty of reasons and lots of reasonable science about why we should eat insects. This paper explores the reasons why we don't, based on a range of issues from Western Civilization's historic approach to cultivation to a cultural abhorrence of insects in our diet. By briefly exploring the ethnocentric backgrounds of Abrahamic traditions (Judaism, Islam, and Christianity) in Western societies, we can identify opportunities to challenge assumptions, break down barriers, and convert our thinking from insects as agricultural adversaries to insects as available appetizers.

Session 1 B: Product Launches Lancements de produits

Third Millennium Farming
Jakub Dzamba

Third Millennium Farms' Circle Chirp is a household cricket farming unit that tightens the circular relationship between urban bio-wastes and farming. Circle Chirp is unique in that it maintains a superior level of hygiene within the farm, is escape-proof and utilizes domestic bio-wastes as feed. Circle Chirp is for people interested in farming their own food-grade crickets as a means of increasing their own food sovereignty, creating a more sustainable household

and reducing the environmental impact of meat production.

Big Cricket Farms
Kevin Bachhuber

In an important step in America's quest for healthy, sustainable food opportunities, Big Cricket Farms' crickets will debut at the 2014 Eating Innovation Conference in Montreal. Big Cricket Farms is the United States' first urban cricket farm dedicated solely to producing human-grade entomophagous products. “The world needs new food habits, and we're proud to present a protein product that's both versatile and sustainable,” says Kevin Bachhuber, founder and owner of Big Cricket Farms, whose operation was recently featured in the *New York Times* and *The Guardian*. Big Cricket Farms' crickets represent an adaptable and sustainable alternative for a world of diverse palates.

Session 2 A: Entomophagy Education L'éducation à l'entomophagie

Integrating Entomophagy Into Existing Sustainable Agriculture Education Programs at the University and Community Level
Donald Sudbrink Jr. & Amy M. Wright

With world population forecast to top nine billion by 2050, food and feed production must be increased by more than half of current levels, while arable land and fresh water resources remain limited. The UN-FAO suggests insects can augment traditional livestock markets to help meet these needs, but some groundwork must be laid in order to widely incorporate them into local food and feed systems. Cultural perceptions of insects in the United States will need to be reconceived. A promising approach to this conceptualization is the incorporation of entomophagy into existing sustainable agricultural education programs at a local level. The Environmental Education Center at Austin Peay State University provides an important resource for demonstrating entomophagy techniques at the university and community level. Efforts are underway to engage and educate university and high school students, as well as community members in entomophagy in courses, labs and community service projects for local hunger relief organizations.

Perceptions of Edible Insects and Food Neophobias
Dr. Marianne Shockley

Eating insects for nutrition is not imperative in the US, as there are many food options available and there is still an attitudinal barrier to the use of insects as human food. Where entomophagy is not prevalent, food choice and food habits are the driving forces of acceptance. In order for entomophagy to be included as a viable cuisine, the concepts of group decision and social change theory must be utilized and further researched. Lewin's food habits research can be the basis for future entomophagy research across the fields of adult education, psychology, entomology and food science. Part of developing entomophagy as a new food habit involves addressing insect fears and phobias while also helping to shape the public's positive perception of insects. Food Neophobia (fear of new foods) prevents people from trying new foods such as insects, and needs to be considered as part of a plan for insects to be accepted and incorporated into Western diets.

L'entomophagie et l'éducation / AnimaNature
Étienne Normandin

Manger des insectes est une activité qui rebute beaucoup de personnes, et pour voir un jour les premiers aliments fait à base d'insectes sur les tablettes des épiceries au Québec, un grand travail de sensibilisation est nécessaire. L'Europe à emboité le pas, mais ici au Canada notre culture gastronomique ralentit l'avènement de l'entomophagie. AnimaNature est une entreprise qui œuvre dans la vulgarisation et la promotion de l'entomologie au Québec. Elle est aussi l'une des seules à faire la promotion de l'entomophagie dans la province à travers des ateliers, des événements et des animations amusantes pour les enfants en milieu scolaire. L'objectif est de préparer le public à cette nourriture du futur, où le goût et l'apparence seront des défis de taille. Tous ces objectifs deviendront possibles par l'existence d'une ferme d'insectes au Québec et AnimaNature est sur le point de créer une telle ferme.

Session 3 A: Public Culture & Taste
Culture publique et goût

Cultivating an Appetite: The Experience of the
Future Food Salons
Elke Grenzer

The question of taste—its moral and ethical grounds—has been a matter of contestation across the Humanities and Social Sciences. In his work *Truth and Method*, Hans-Georg Gadamer locates taste as a form of judgment that refers to a collective or community that develops a “common sense” through practical wisdom. Taking this notion of a common sense, and what Hannah Arendt later referred to as a “sixth sense”, this presentation explores the nature of the communal bond assumed in our model of Future Food Salons where we introduce insect eating as an affectively charged challenge to normative practices as the basis for cultivating a culture of discernment. Such a culture, I argue, is necessarily aesthetic and initiates a way for thinking about the character of food, cuisines and their transformation. In this sense, the aesthetic is not limited to the action of adding art to the eating of insects, nor simply making food beautiful. Rather, the development of an aesthetic relationship to a practice such as eating intends to influence habits by bending form itself as part of the process of engaging people in entomophagy. Whether cuisine, urban farming, music or fine art – the art of this practice is the cultivation of sensory responsiveness that aims to develop new capacities for knowledge that can be absorbed, digested and ultimately reshaped by a public. This process and its relation to social innovation, forms the basis of a formulation of entomophagy as a “disruptive” process.

100th Anniversary of
The New York Entomological Society
Louis N. Sorkin

The New York Entomological Society celebrated its 100th Anniversary in 1992 and the organizing committee decided on entomophagy as the theme. Our president invited good friend and entomophagist, Gene DeFoliart, to be our keynote speaker. The committee secured meeting facilities, chefs and caterers, and insect suppliers and contacted media outlets (basically relied on phones and faxes) to publicize the

event. The brownstone ambiance of the Explorer's Club was offered and accepted. Mealworms, waxworms and crickets were prepared in various ways. Insect delicacies included kurrajong grubs from Australia, live US honeypot ants fed on apricot nectar, and belostomatid bugs from Thailand. We also featured insect-related materials including sculptures made of bronze and of wood, live insect displays and living table arrangements composed of tarantulas or scorpions, plants, flowers and origami insects. Background music included live cricket chirping. Our centennial banquet attracted world-wide media attention due to uniqueness of the subject matter.

Faire évoluer les perceptions de l'entomophagie:
le rôle des musées
Anne Charpentier

L'Insectarium, un Espace pour la vie, a offert pendant plusieurs années l'événement Croque-insectes, qui a marqué l'histoire du musée. L'entomophagie en occident rencontre encore des freins culturels importants pour permettre l'adoption de cette voie alimentaire. À travers Croque-Insectes, l'Insectarium a pu mesurer l'impact d'un événement à caractères éducatif sur le changement de perception des visiteurs. De plus, l'Insectarium est en voie de se métamorphoser d'ici 2017 (agrandissement du musée). Le nouveau musée prévoit intégrer des expériences entomophagiques et des éléments informatifs quant aux avantages de l'entomophagie. Un atelier réalisé avec des citoyens en janvier 2013 nous a démontré l'intérêt et les préoccupations du public en ce qui a trait à cette voie alimentaire et écologique.

Session 3 B: Edible Insects & the Americas **Les insectes comestibles et les Amériques**

Rustling Up Some Grub:
A Model for Entomophagy Education
Kiah Emily Brasch

The cultural perception of entomophagy can be a significant roadblock to widespread acceptance. Education through public engagement is key to overcoming this challenge. One model for effective dissemination of this information is the two-part public program "Rustle Up Some Grub" presented at the Norman Bird Sanctuary (Newport, RI). Part I in-

cluded a presentation on the benefits of eating insects, utilizing the Prezi™ software platform. Topics included: historical entomophagy, misconceptions about insects, ethical comparisons to other meat, food security, nutrition, resources for obtaining insects, sustainable rearing practices, farm-to-table concepts, and recipe examples. Part II centered on the cuisine, with a strong focus on the aesthetics of the food itself as well as accoutrements and marketing materials. Participants sampled a three-course offering of gourmet insect dishes from original recipes. The menu engaged diverse appetites from squeamish to adventurous. This program represents an effective model for future entomophagy outreach programs.

Taste and Tradition of Insects in Mexico
Ricardo Redondo

Mexico is a country with a tradition in the consumption of insects: a practice that dates from pre-Hispanic times to the present day. In this paper I discuss different forms of insect preparation and the cultural richness of the people and areas where the food is prepared.

Edible Insects and New England Resilience
Samara Brock & Mark Bomford

"How we eat determines, to a considerable extent, how the world is used." – Wendell Berry

If we continue to eat as North Americans eat today, then we will soon run out of world resources. Fortunately, it may be possible to eat in ways that are healthy, delicious, and can sustain nine billion diets and biodiversity within planetary boundaries. The study will investigate two similar novel foods with just this potential: seaweeds and edible insects. The three key questions addressed by the research are, (1) What potential ecological, social, and economic benefits would production of insects and seaweeds for food, feed, and feedstock bring to New England and beyond?, (2) Which specific approaches may have the highest likelihood of achieving such benefits? and (3) What expansion pathway is the most desirable for these enterprises, and what barriers must be overcome for them to scale up?

Session 4 A: Breeding and Feeding Reproduction et alimentation

Study of the Potentiality of Insect Breeding System for Human Food in Cambodia (Ratanakiri Province)

Rudy Caparros Megido, Taofic Alabi, Clément Nious, Christophe Blecker, Sabine Danthine, Aman Paul, Éric Haubruge, Frédéric Francis

The main purpose of this work was to optimize a cheap cricket breeding production for local farmers based on unused wild resources. Cricket [*Teleogryllus testaceus*] development was compared between seven diets composed of different ratio of aerial parts of taro, young cassava leaves, young cashew leaves, brown rice flour (with or without banana slices) and between the traditionally used chicken feed diet. Cricket mortality was low on all diets (<10 %) except on the two cashew-based diets (>90 %). Mean adult body mass was significantly higher on chicken feed diet and on the two cassava-based diet than on the other. Moreover, protein percentage in cassava-fed crickets was similar with that of wild crickets. As each villager grows cassava for their tubers without using the leaves, this free available resource could be used to breed crickets in order to contribute to the reduction of protein deficiency and create new sources of incomes.

Les potentiels insectes alimentaires d'Afrique
Francophone
Sévérin Tchibozo & Patrice Mergen

L'Afrique est un continent potentiellement riche qui peut s'auto suffir sur le plan alimentaire et nutritionnel. La part des protéines devient de plus en plus faible dans l'alimentation de l'Homme. Cette déficience progresse rapidement dans le monde et tout particulièrement en Afrique, où les sources protéiniques sont encore diversifiées, mais pas nécessairement faciles d'accès ou consommées. Les Produits Forestiers Non Ligneux (PFNL) sont consommés depuis les temps ancestraux et jusqu'à nos jours. Les insectes alimentaires occupent une place très importante dans l'alimentation en protéine de milliers de personnes habitants dans les milieux ruraux et urbains en Afrique qui n'ont pas accès à la viande de brousse ou vendue dans les boucheries. Treize espèces d'insectes appartenant aux ordres des Isoptères [Blattodea], Lépidoptères, Coléoptères et Orthoptères

sont classées par les consommateurs comme riche en protéine et en autres éléments nutritifs pour leur bien être. La forte pression sur leur cueillette en nature fait que ces espèces deviennent très rares et de plus en plus chères sur les marchés. Des alternatives comme l'élevage sont à envisager pour diminuer la pression sur l'environnement, les risques sur la biodiversité en cas de surexploitation et pour garantir l'accès à cette source de protéines à un prix abordables pour les consommateurs. Fort des expériences acquises suites aux développements intensifs de l'élevage des animaux de ferme ou dans le domaine de l'aquaculture, il est à plaider pour une approche biologique et durable en ce qui concerne les perspectives en 'entomoculture'. Le poster montre les espèces alimentaires et les impacts sur leur cueillette.

Potential Edible Insects of French Speaking Africa
Sévérin Tchibozo & Patrice Mergen

Africa is a potentially rich continent, with resources for self-sustainable food and nutrition plans; however, the percentage of proteins in meals has been on a gradual decline. This deficiency is progressing rapidly worldwide and particularly in Africa, where the sources of proteins still remain diverse, but not necessarily easy to access, nor consumed at a healthy rate. Non-ligneous forest products have been consumed for generations and edible insects can still play an important role in protein intake of thousands of people inhabiting rural and urban areas in Africa, especially since the average person in Africa cannot easily access bush meat or meat sold in butcherries. Thirteen insect species belonging to the orders of Isoptera [new order is Blattodea and includes cockroaches], Lepidoptera, Coleoptera and Orthoptera have been identified as being particularly rich in proteins and other nutritional elements important to the well-being. The high demand for free-ranging insect species has created a strain upon wild species and has resulted in price increases in markets. Alternatives such as rearing need to be considered in order to reduce environmental pressure and the risks of biodiversity loss in the case of over-exploitation, and to guarantee access to this source of protein at an affordable price to the consumers. Based on experiences gathered from animal breeding farms and the domain of aquaculture, it is argued that a more biological and sustainable approach concerning perspectives and approaches to "entomoculture" are required.

Feed Utilization of Insects

D.G.A.B. Oonincx, S. van Broekhoven, A. van Huis, & J.J.A. van Loon

It has been suggested that insects efficiently convert feed to body mass. This depends on the investigated species and diet composition. Two species suitable for direct human consumption (Yellow mealworms [*Tenebrio molitor*] & House crickets [*Acheta domestica*]) and two suitable as feed, or for protein extraction (Argentinean cockroaches [*Blaptica dubia*] & Black soldier flies [*Hermetia illucens*]) were selected. These were supplied experimental diets with either a high or a low protein content, and a high or a low fat content. Large differences regarding feed conversion efficiency, survival rate, and nutrient composition were found between species, and within a species as a result of the provided diets. While conversion efficiency of the edible species was similar to pigs, and less than chicken, due to their high edible portion, they provided more food with the same amount of feed than these common production animals. The two other species were more efficient in converting feed to body mass than chickens.

Il est proposé que les insectes puissent efficacement convertir les aliments en masse corporelle, cela dépendant de l'espèce étudiée et la composition de leur régime alimentaire. Deux espèces propres à la consommation humaine ont été sélectionnées (Vers de farine [*Tenebrio molitor*] & Grillon domestique [*Acheta domestica*]), ainsi que deux adaptées à la production d'aliments pour animaux ou à l'extraction de protéines (Blatte d'Argentine [*Blaptica dubia*] & Mouche soldat noire [*Hermetia illucens*]). Ces espèces ont été nourries par des rations expérimentales ayant un taux de protéine élevé ou faible, de même pour le taux de matières grasses. Des différences importantes, en termes de taux de conversion, taux de survie, et composition nutritive, ont été observées entre les espèces, ainsi qu'au sein d'une même espèce, ceci résultant des différents régimes. Bien que le taux de conversion alimentaire des deux espèces comestibles était semblable à celui d'un porc, et inférieur à celui d'un poulet, en raison de leur part consommable élevée, pour une même quantité d'aliments ces insectes fournissent davantage de masse que ces animaux d'élevage courants. Les deux autres espèces montraient une efficacité au niveau de la conversion alimentaire plus élevée que celles de poulets.

Session 4 B: Regional Insect Eating La consommation d'insectes dans le monde

Preferred Edible Arthropods in Rural Areas of Madagascar

Maminirina Randrianandrasana & May R. Berenbaum

Entomophagy, a longstanding Malagasy culinary tradition, is associated with rural life in Madagascar. Some arthropod species encountered in the field while farming are consumed as a meal or a snack. We conducted a survey from April to June 2013 to evaluate the current importance of entomophagy in the highlands and the west and east coast regions. We recorded the number of times a representative of each household mentioned the names of insects and other arthropods they consumed. Survey results indicated that a total of 2,512 arthropods identified to 65 morpho-species were consumed by rural populations. Arthropod preferences varied among the sites, possibly due to the idiosyncrasies of the ecosystems and the human activities in each region. Seasonal availability of edible arthropods was also broadly evaluated. Information gained from this study is useful for assessing possible roles of entomophagy in solving issues concerning food security and forest conservation in Madagascar.

Entomophagy and Evolution: Eating Insects Past, Present, and Future Julie Lesnik

This talk will investigate insects as food from an evolutionary perspective. Over the course of our evolution, our nutritional demands greatly increased, in large part due to the evolution of our large brains. Our ancestors likely exploited insects as part of the increase in dietary quality during these critical times. However, survival and reproduction is not only a problem of the past. Today, insects are especially important nutritionally in societies that do not utilize large-scale agriculture. Additionally, our closest living relatives, the nonhuman primates, eat insects to varying degrees across the order. Omnivorous nonhuman primates that supplement their diets with insects provide especially enlightening patterns on the nutritional role of insects. This paper synthesizes information on insects as food from across the field of biological anthropology in order to understand the nutritional role they played over human evolution,

and the role that they may continue to play in our future.

Edible Insects in Southeastern Nigeria
Dr. Cordelia Ifeyinwa Ebenebe &
Valentine Obinna Okpoko

Consumption of edible insects is a viable strategy to counter the existing problems of malnutrition in Nigeria. Our aim was to identify the insects consumed in the Southeastern part of Nigeria and the factors that promote/limit insect consumption as a prelude to strategic planning on popularizing entomophagy. Questionnaires were administered to people within four age brackets (10-25, 26-40, 41-55, >56), addressing age brackets that eat insects most, time periods when insect consumption was at its peak (before, during and after the civil war), type of insects consumed, entomophagy-promoting factors (malnutrition, poverty, religion, enlightenment) and limiting factors (poverty, customs, seasonality, life style).

Five major insects were consumed: (*Rhynchophorus phoenicis*, *Zonocerus variegatus*, *Gymnogyllus lucens*, [*Orcytes rhinoceros*] and *Macrotermes* species) and consumption was highest during the war to counter the incidence of Kwashiokor, and that older people consumed insects the most. We recommend edible insect farming and the incorporation of edible insects into modern cuisine.

Session 5 A: Marketing Edible Insects I **La commercialisation des insectes comestibles I**

L'entomophagie au Mexique
Sophie Coulombe

Le principal groupe d'animaux sur Terre est celui des insectes. Les insectes habitent notre planète depuis plus de 350 millions années et ils se sont adaptés aux changements géologiques subis par la nature. Bien que les insectes soient généralement considérés comme des sources alimentaires de faible rendement énergétique par rapport au gibier, leur abondance est quatre fois plus élevée que celle des vertébrés. Ils ont un énorme potentiel de reproduction et on peut les trouver presque partout dans le monde. Étant donné l'ampleur de cette ressource naturelle renouvelable, l'humanité ne peut pas les sous-estimer.

Démarrer une entreprise en entomophagie,
l'expérience de uKa protéine
Marie-Loup Tremblay & Alain Léon

La société uKa protéine est intéressée à participer au congrès et à partager son expérience, car ses activités concernent la consommation d'insectes chez l'humain. L'entreprise a mené une étude de marché sur la faisabilité de produire et de mettre sur le marché des insectes comestibles et des produits dérivés. L'entreprise fait de la vente directe d'insectes comestibles et elle offre des présentations/dégustations d'insectes dans divers milieux. L'objectif de uKa protéine est de développer ce marché en émergence en créant une série de collations à base d'insectes et en mettant sur pied une ferme d'élevage d'insectes comestibles d'ici deux à trois ans.

Innovation & approvisionnement en entomoculture:
les défis d'un avenir
Chanel Boucher

Depuis que j'ai goûté aux insectes, il y a plus de 10 ans, j'ai cherché en vain à m'approvisionner. Leur goût exquis me restait cependant à l'esprit. En Juin dernier, je lance mon premier élevage de ténébrions pour ma consommation personnelle. Je m'équipe d'une échelle à pâtisserie, de bacs alimentaires, de farine biologique et de 2000 vers de farine. J'ai amélioré mon système, au fil des expériences. J'ai aussi développé une passion pour l'entomoculture, où l'innovation se retrouve à de divers niveaux : infrastructure, automatisation, contrôle, tri, méthodes de stockage, conservation et transformation. Aujourd'hui, j'ai décidé de me lancer et de produire des insectes à l'échelle commerciale. Mais la difficulté de s'approvisionner demeure. Pendant ma présentation, je vous parlerai essentiellement de mon expérience et de défis à relever lors du lancement d'une entomoculture, dont celui de l'approvisionnement en reproducteurs.

Session 5 B: Marketing Edible Insects II **La commercialisation des insectes comestibles II**

Commercialisation of *Rhynchophorus* species larvae at
Mvog-Mbi Market in Yaoundé, Cameroon
Mr. Salion Niassy, African Insect Science for Food and
Health, Nairobi, Kenya

Rhychophorus species are among the most consumed species of edible insects in Africa and particularly in Western and Central Africa, both larvae and adults are consumed at a high rate. Their consumption has been reported in more than ten African countries. In Cameroon, the commercialization of *Rhychophorus* species larvae is a woman-led business. This insect is considered a delicacy and larvae are shipped from surrounding villages and delivered with raphia palm fibers as food substrate to keep larvae live up to four days. A small cup of 0.1L of insect costs 1,000 francs (two US dollars). Although this commerce is still very informal, the value chain involves intermediaries who control the market between producers in villages and the resellers in the city. Since the demand of this insect is extremely high, the threat to the palm ecosystem in Cameroon and elsewhere has also increased. At present there is urgent need to develop mass-production and preservation strategies in order to ensure a sustainable supply of this insect in Africa.

Cultivating Edible Insects in Mexico
Ricardo Redondo

Chilipines has been in the business of producing and marketing edible insect products since 2010. The range of products includes salsas as well as flavoured grasshoppers ready to be used in a recipe. The company is represented in Canada by the Montreal-based Gourmex Inc. In this talk, Mr. Redondo shares his experience marketing insects in Mexico and in export markets.

Session 6 A: Transcultural Entomophagy
L'entomophagie transculturelle

Lao Expats' Loyalty to Entomophagy
in New York City
André Luis Marín

The Lao community is unique. Not only have they managed to maintain their historical entomophagy culture, but they have also capitalised on it. The tourist heavy city-streets of Bangkok are littered with insect vendors speaking Lao. This is not surprising since 95% of the Laotian population eats insects, which in today's Western-derived cuisine and ideological world is hard to beat at a national level and is a fact that sister country Thailand is notoriously aware.

There are about 300,000 Lao expats living in the USA. While the Lao expat community may be able to and may even want to introduce their entomophagous practices to the United States, their dietary tradition is vulnerable to the American appetite for processed food. Elmhurst, Queens, in New York City, is the most ethnically diverse county in the world and is home to the third largest Thai-Lao community in the United States, after San Francisco and Atlanta. As an anthropology student, I am interested in the Lao population's success in keeping their taboo practice alive, despite being 13,500 kilometres (8,389 miles) away from their cultural environment.

Entomophagy, Identity, and Evolution
David Gracer

Although it's clear that entomophagy provokes strong reactions in most people, there has been little study of those reactions. By its very nature, disgust problematizes curiosity. Given the predictions of many scientists and other observers concerning the next several decades, understanding the "logic" that underpins negative views of insect consumption is quite useful. This talk will examine various documents and other evidence, so as to better address the hearts and minds of the public.

Quand la biodiversité entomologique devient une
source d'aliments
Taofic Alabi, M. R. Caparros, E. Haubruge et F. Francis

L'idée de nourrir les populations animales dont l'homme à partir d'insectes n'est plus une utopie, mais une réalité à laquelle il faudra s'adapter. L'insecte naguère considéré comme nuisible ou vecteur de maladies apparaît désormais comme une solution au défi de l'alimentation mondiale. La diversité entomologique est caractérisée par plus de 2000 espèces comestibles, réparties en quatre principaux ordres au niveau mondial : Coléoptères (31%), Lépidoptères (18%), Hyménoptères (14%) et Orthoptères (13%). La plupart des espèces comestibles proviennent des pays tropicaux. Selon la FAO, le nombre de consommateurs réguliers d'insectes est estimé à 2 milliards à travers le monde (Afrique, Asie et Amérique du Sud). La plupart des espèces consommées sont récoltées dans la nature, avec le risque de perturbation des écosystèmes. Au regard des enjeux de la sécurité alimentaire mondiale, les insectes

constituent une alternative prometteuse en raison de leurs valeurs nutritionnelle et énergétique (protéines (30 à 80), lipides (20 à 30%), hydrates de carbones (5 à 10%)). Le défi consistera en l'élaboration de systèmes de production de masse durables, garantissant à la fois la traçabilité, l'accessibilité et la qualité de la ressource à des coûts relativement intéressants. Plusieurs approches liées à la zone géographique ciblée sont en cours de développement et sont présentées afin de démontrer la diversité des potentialités pour résoudre au moins partiellement le déficit alimentaire à venir.

Session 6 B: Farming Edible Insects Élever des insectes comestibles

Catalyzing the Economy with Edible Insect Farming *Kevin Bachhuber*

This presentation describes the experience of founding an edible cricket farm in an economically distressed area and discusses the process of adapting to the culture. Integrating a business plan into a community, an urban edible farm can become a force for revitalization. Strategies for sustainable urban renewal and urban agriculture in the face of challenges and opportunities of working in economically depressed regions will be addressed.

Restructuring Urban Bio-wastes as Inputs for Urban Micro-Crop and Micro-Livestock Farming Operations *Jakub Dzamba*

This presentation builds on a concept first introduced in 2010, called Third Millennium Farming (3MF), which indicated that 3MF food production strategies have a significantly smaller foodprint than current techniques for crop farming and livestock rearing. How unique synergies can be created by utilizing city bio-wastes and sunlight to farm micro-crops which can be used as feed for micro-livestock, while through the same process clean city waste water, scrub CO₂ from the city air, and produce food for the city's inhabitants will be described.

In addition, this paper will identify existing urban bio-waste streams that hold the potential to serve as inputs for producing insect feeds. Certain simple bio-waste streams, such as compost and yard waste, can

be repurposed to serve as insect feeds with minimal modifications to existing waste management practices. Other complex bio-waste streams, such as grey water and sewage, will require extensive restructuring of existing bio-waste management practices to repurpose as inputs for insect feed production. Further, new insect-farming technologies that are capable of utilizing simple urban bio-waste streams, and urban planning and waste management solutions for repurposing complex bio-waste streams will be identified.

Tackling Health Challenges in Production and Agri-Food Processing of Edible Insects for Food: The Example of Micronutris *Cédric Auriol*

Edible insects represent one of the most interesting options to answer food security and environmental issues through their potential for large-scale productions of nutrients with a low impact on both resources and ecosystems. However, a wide range of issues has to be tackled before nutrients from insects can be found in the diet of European or North-American people. One of the main challenges is to provide edible insects that respond to local health requirements. The aim of this talk is to review health aspects that must be considered from production to insect processing and how they can be integrated into a large scale production system. This is achieved through a concrete case, Micronutris, a French company which raises edible insects and develops food products.

Répondre aux problématiques sanitaires dans la pro- duction et la transformation d'insectes comestibles pour l'alimentation humaine: L'exemple Micronutris *Cédric Auriol*

Les insectes comestibles constituent une des pistes les plus intéressantes pour répondre aux enjeux alimentaires actuels, notamment la nécessité de produire à grande échelle des nutriments ayant un faible impact sur les ressources et les écosystèmes. Cependant, avant que les nutriments issus des insectes ne s'installent durablement dans le régime alimentaire des Européens et Nord Américains, de nombreux problèmes inhérents à l'aspect innovant de cette filière doivent être examinés. Un des challenges majeurs est de fournir des insectes qui répondent aux exigences sanitaires en vigueur. L'objectif de cette présentation est de discuter des aspects sanitaires à prendre en compte, de la

production jusqu'à la transformation agroalimentaire des insectes mais également comment ils peuvent être intégrés dans un système de production à grande échelle. Ceci est réalisé à travers un cas concret, Micronutris, une société Française qui élève des insectes comestibles et développe des produits alimentaires à base d'insectes.

Poster

Assessment of the Microbiological Quality of Raw and Roasted Palm Weevil (*Rhynchophorus phoenecis*) Consumed in Southeastern Nigeria
*Cordelia Ifeyinwa Ebenebe and
Valentine Obinna Okpoko*

Aim: To assess the microbiological quality of raw and roasted *Rhynchophorus phoenecis* consumed in Southeastern Nigeria.

Introduction: Improving animal protein consumption in Nigeria necessitates a study into the present mode of utilization as a prelude to strategize on improved handling, processing and storage.

Methodology: Raw *Rhynchophorus phoenecis* larvae collected from palm frass from Oba, Idemili Local Government Area and roasted ones purchased from hawkers along Onitsha - Owerri Road were separately cut open with lancets and intestinal contents separately inoculated onto prepared plates of MacConkey agar, Nutrient agar and Sabaroud agar, respectively, using wire loop. The inoculated plates of MacConkey and Nutrient agar were incubated at 37°C for 24 hours while those on Sabaroud agar were incubated at 28°C for seven days.

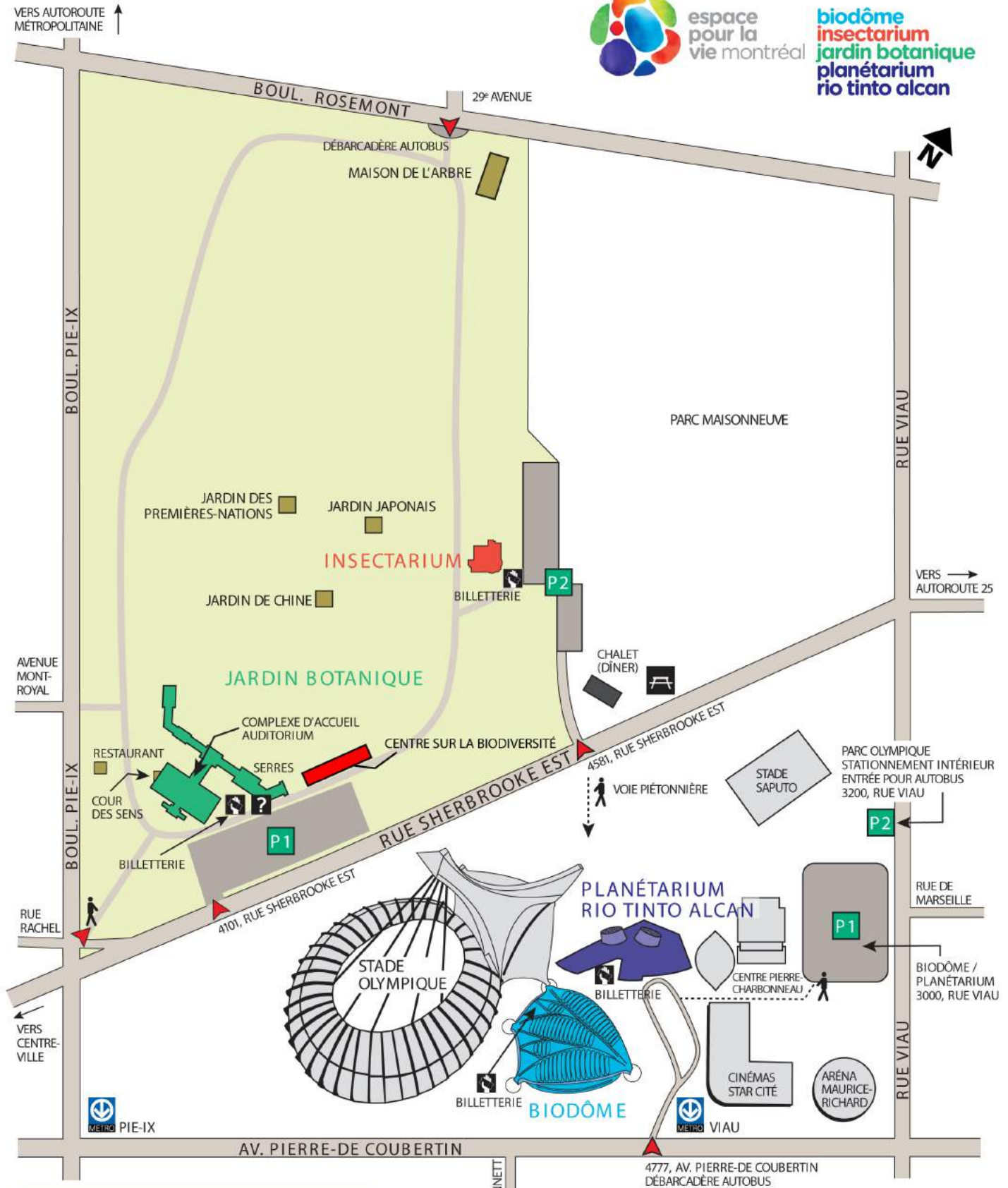
Results: Three species of bacteria (*Staphylococcus aureus*, *Escherichia coli* and *Salmonella sp.*) were observed in the raw *Rhynchophorus phoenecis*, but three species of bacteria (*Bacillus subtilis*, *Pseudomonas aeruginosa* and *Proteus vulgaris*) and two species of fungi (*Cladosporium sp.* and *Aspergillus flavus*) were isolated from the roasted ones.

MAP/CARTE



espace
pour la
vie montréal

biodôme
insectarium
jardin botanique
planétarium
rio tinto alcan



Biodôme	4777, av. Pierre-De Coubertin
Insectarium	4581, rue Sherbrooke Est
Jardin botanique	4101, rue Sherbrooke Est
Planétarium Rio Tinto Alcan	4801, av. Pierre-De Coubertin

Réservations groupes
514 868-3056 • 514 872-1823
reservationspacevie@ville.montreal.qc.ca

Volunteers /Bénévoles

Jaci Ampulski
Julien Baylet
Eric Bescak
Chanel Boucher
Gabriel Couture
André Luis Marín
Meredith Marín
Verónica Sanz
Kelsey Speakman

Advisory Board / Comité consultatif

Dr. Robert Kok, Emeritus Professor of Engineering, Department of Bioresource Engineering, Faculty of Agricultural and Environmental Sciences, Macdonald Campus of McGill University, Ste-Anne-de-Bellevue, Canada

Dr. Marianne Shockley, Department of Entomology, University of Georgia, Athens, Georgia, USA

Louis N. Sorkin, BCE, Entomologist, Arachnologist, Division of Invertebrate Zoology, American Museum of Natural History, New York, USA

Thank you /Remerciements

Verónica Sanz
Emilio Hernandez and Sophie Coulette
Sacha Kumar and the rest of the staff at the Annex Building at the Centre for Social Innovation, Toronto
Rick Wallace
Staff of the Montreal Space for Life's Insectarium, especially Lucie Rochette, Thérèse Cartier, David Racette,
Karine Jalbert and Nadine Fortin
ECTO, Montréal
Eric Smith
Sarah Byck
John Kipphoff
Ilke Braun
Alessandra Cerroni, Mangeons Montréal
Michael Allcock
Penguin Perspective
Silvana Handa
Peter Sibenik and Gillian Lynne-Davies
Cook Caravan
Jan Keck
Michal Labik
Louis Sorkin, Entsalt Associates, Inc.
Afton Halloran, Food and Agriculture Organization of the United Nations



THIRD MILLENNIUM FARMING'S

CIRCLE
CHIRP

Third Millennium Farming is proud to launch Circle Chirp on August 26, 2014 at the Eating Innovation Conference in the Reception Hall of the Montreal Botanical Garden. Circle Chirp is the first household food-grade cricket-farming unit.

Circle Chirp tightens the circular relationship between urban bio-wastes and farming. Circle Chirp is unique in that it maintains a superior level of hygiene within the farm, is escape-proof and utilizes domestic bio-wastes as feed. Circle Chirp is for people interested in farming their own food-grade crickets as a means of increasing their own food sovereignty, creating a more sustainable household and reducing the environmental impact of meat production.

Circle Chirp maintains superior levels of hygiene within the farm by utilizing a unique cricket-herding mechanism that evacuates crickets from their own waste and helps decrease odours. Specialized feeding cartridges provide the user with a hassle free method of getting food scraps in, and out, of the farm. A built-in reproduction mechanism lets crickets lay their eggs before they are harvested; which allows users to produce continuous generations of crickets.

Circle Chirp will be available for purchase for \$150 at the Eating Innovation Conference and online at www.thirdmillenniumfarms.com.

For additional information or interviews, please contact Jakub Dzamba at kubo@thirdmillenniumfarming.com or (416) 670-5611.

Third Millennium Farming est fière de présenter Circle Chirp à la conférence sur l'Innovation alimentaire qui aura lieu le 26 août 2014, à la salle de réception du Jardin botanique de Montréal.

Circle Chirp est la première unité d'élevage de criquets destinés à la consommation humaine en tant que produit alimentaire courant. Circle Chirp a un rapport circulaire très étroit entre les déchets biologiques urbains et l'élevage. Circle Chirp est unique parce qu'il maintient un niveau supérieur d'hygiène à la ferme, s'évade du réel et utilise les déchets biologiques domestiques comme alimentation. Circle Chirp est un concept pour les personnes intéressées à développer leur propre élevage de criquets en vue de les consommer, un moyen d'augmenter leur propre subsistance alimentaire, de créer un ménage autosuffisant et de réduire les effets environnementaux de la production de la viande.

Circle Chirp maintient un niveau supérieur d'hygiène à la ferme en utilisant un mécanisme d'élevage de criquets qui évacue les criquets de leurs propres déchets et diminue les odeurs. Des distributrices de nourriture spécialisées permettent à l'utilisateur d'introduire librement et de se débarrasser des débris de nourriture à l'extérieur de la ferme. Un système intégré de reproduction permet aux crickets d'y pondre leurs oeufs avant qu'ils soient prélevés, ce qui permet à l'utilisateur de produire des générations continues de crickets.

Circle Chirp sera en vente à la conférence sur l'Innovation alimentaire et disponible en ligne à l'adresse www.thirdmillenniumfarms.com.

Prix unitaire : 150 \$

Eating Innovation: the art, culture, science and business of entomophagy is a presentation of the Future Food Salon Group in collaboration with the Montreal Space for Life Insectarium.

Innovation alimentaire: l'entomophagie à travers l'art, la culture, la science et les affaires est présentée par le Future Food Salon Group (groupe de concertation sur l'alimentation du futur) en collaboration avec l'Insectarium de Montréal et Espace pour la vie.

Environmentally friendly

This event is environmentally-friendly and meets the standards of the Quebec Council for Sustainable Events. We appreciate your cooperation in minimising the carbon footprint of the conference.

Écoresponsable

Cet événement est écoresponsable et rencontre les normes du Conseil québécois des événements écoresponsables (CQEER). Nous apprécions votre coopération afin de minimiser l'empreinte carbone de cette conférence.

Conference Address/Adresse de la conférence

4101 rue Sherbrooke E., Montréal, Québec H1X 2B2, Canada
416.606.0799 SUBWAY/Métro : Pie-IX.

Future Food Salon Group Address/Adresse du Future Food Salon Group

c/o Alimentary Systems Inc. 720 Bathurst St., Suite 200, Toronto, Ontario M4S 2R5 Canada
hello@futurefoodsalongroup.com 416.606.0799 www.futurefoodsalongroup.com

Future Food Salon Group Members / Membres de Future Food Salon Group

Mr. Jakub Dzamba, (Farming technologies) Third Millennium Farming
www.thirdmillenniumfarming.com

Mr. David Gracer, (Strategic partnerships, Gracer Entomophagy Collection) Small Stock Food Strategies
www.smallstockfoods.com

Dr. Elke Grenzer (Director) Culture of Cities Centre
www.cultureofcities.ca

Dr. Aruna Antonella Handa (Director) Alimentary Initiatives
www.alimentaryinitiatives.com

Ms. Natalia Martinez (Cuisine) Cookie Martinez
www.cookiemartinez.com

Ms. Han Zhang (Artistic Director) Han Studio
www.han-studio.com

Insectarium

Mme Anne Charpentier, Director of the Insectarium / Directrice de l'Insectarium

Conference Convenors

Dr. Aruna Antonella Handa, Alimentary Initiatives, Future Food Salon Group, Toronto
aruna@alimentaryinitiatives.com 416.606.0799

Dr. Elke Grenzer, Culture of Cities Centre, Future Food Salon Group, Toronto
elke.grenzer@cultureofcities.ca

(The cover photograph is a detail of the prototype of CHRYSALIS, prepared for the Discovery Gallery, at the conference. Artwork Han Zhang & Marjan Verstappen, 2014; photo by the artists)

(La photo de couverture montre un détail d'un prototype d'une sculpture qui a été produites pour la Galerie des découvertes, de la conférence. Une création de Han Zhang & Marjan Verstappen, 2014. Photo prise par les artistes.)

FUTURE
FOOD
SALON
GROUP

futurefoodsalongroup.com



espacepouurlavie.ca