ICAR2020
Bologna, Italy

19th International Congress on Animal Reproduction
BOLOGNA (ITALY), 27th JUNE - 1st JULY 2021
Dear Colleagues and Friends,

On behalf of the Local Organising Committee, it is my pleasure to invite you to attend the 19th International Congress on Animal Reproduction that will be held at the Palazzo della Cultura e dei Congressi in Bologna (Italy) from 27th June to 1st July 2021.

As you possibly know, the Congress was to be held in Bologna from 28th June to 2nd July 2020; however, due to the Coronavirus outbreak that has paralyzed the scientific community (and not only) worldwide, it has been moved to next year; being that the original date was 2020, we decided to continue to refer to the Congress as ICAR2020.

The International Congress on Animal Reproduction (ICAR) is a non-profit international organization that conducts conferences on animal reproduction. Founded in 1948, ICAR has no members but is governed by a Standing Committee made of scientists representatives of over 40 countries and has held a major conference every four years in many countries throughout the world. The focus of the Congress is animal reproduction, including animal physiology, animal pathology and reproductive technologies.

The conference is organized in individual plenary sessions followed by concurrent symposia and workshops as well as poster sessions. A trade exhibition will remain open throughout the conference.

At ICAR 2020 we are expecting between 800 and 1200 delegates who will attend a 4-day Scientific Programme organized in 5 Plenary Sessions, 12 Symposia 23 Workshops and 3 Poster sessions.

Join us at the ICAR 2020 (in 2021)!

Prof. Carlo Tamanini
Chair of the Organising Committee
COMMITTEES

LOCAL ORGANIZING COMMITTEE

Carlo Tamanini (Chair)

Diego Bucci (Secretary)        Maria Laura Bacci

Giovanna Galeati                                              Cesare Galli

Gaetano Mari                                              Marcella Spinaci

Department of Veterinary Medical Sciences of the University of Bologna

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Avantea (Cremona)

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Carlo Tamanini
Department of Veterinary Medical Sciences, University of Bologna

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## PROGRAMME AT A GLANCE

### SUNDAY 27TH JUNE 2021

**From 16.00**  Registrations
**19.00**  Welcome Cocktail

### MONDAY 28TH JUNE 2021

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<tr>
<td>8.00</td>
<td>Opening Ceremony &amp; Simmet Prize</td>
<td>Coffee Break</td>
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<td>9.00</td>
<td>PLENARY 1: Sustainable breeding in a changing climate</td>
<td>WORKSHOP 19: Overview on equine chorionic gonadotropin (RCG, PMSG) use in breeding protocols: results of use of the native product and introduction of a recombinant alternative (11.00 - 13.30)</td>
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<td>SYMPOSIUM 4: New aspects of corpus luteum regulation toward successful pregnancy</td>
<td>SYMPOSIUM 3: Cloning and genome editing</td>
<td>SYMPOSIUM 2: Devising new gonadotropins for the future...which strategies, which uses?</td>
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<td>16.30</td>
<td>WORKSHOP 1: Opu: hormones, time and follicular size</td>
<td>WORKSHOP 3: Pregnancy and perinatal care</td>
<td>WORKSHOP 4: Pluripotent embryonic stem cells: past, present and future</td>
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### MONDAY 28TH JUNE 2021

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<td>11.00</td>
<td>WORKSHOP 20: Bovine semen preservation media: high performance without use of milk or egg yolk (11.10 - 12.00)</td>
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<td>14.00</td>
<td>WORKSHOP 5: Improving livestock production: beyond genetic gain</td>
<td>SYMPOSIUM 1: The nonconformist: conceptus-maternal communication in the dog</td>
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<td>17.00</td>
<td>WORKSHOP 6: Reproduction in camelids</td>
<td>WORKSHOP 2: Reproduction of cultured fish</td>
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## PROGRAMME AT A GLANCE

### TUESDAY 29TH JUNE 2021

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<tr>
<td>8.30</td>
<td>AUDITORIUM</td>
<td>PLENARY 2 Extracellular vesicles in female reproductive function</td>
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<td>12.00</td>
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<td>SYMPOSIUM 7 Effects of heat stress on reproduction: from conception to lactation</td>
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<td>SYMPOSIUM 5 Reproduction in non-domestic and endangered species</td>
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<td>SYMPOSIUM 8 Cryopreservation: freezing, vitrification, freezing drying</td>
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<td>WORKSHOP 8 Improved mammalian embryo production by novel biomimic-designed 3d and microfluidic cell culture approaches</td>
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<td>WORKSHOP 11 Gonadotropin secretion in cattle and sheep: new discoveries</td>
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<td>WORKSHOP 10 The gait of assisted reproduction in the equids</td>
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<td>WORKSHOP 21 Stem cells and their products: applications in reproductive diseases of domestic animals (10.30 - 12.00)</td>
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<td>WORKSHOP 22 Stem cells and their products: future in the data driven bovine industry (10.30 - 11.30)</td>
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<td>SYMPOSIUM 6 Immune regulation of oviduct/uterine function</td>
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<td>ROOM COBALTO</td>
<td>WORKSHOP 9 Reproductive toxicology in marine mammals</td>
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<td>WORKSHOP 12 Is a new star born? NGF role on ovulation induction and sperm traits</td>
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<td>WORKSHOP 7 Advances in sperm cryopreservation technology for conservation of avian genetic resources</td>
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## PROGRAMME AT A GLANCE

### WEDNESDAY 30TH JUNE 2021

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<td>SYMPOSIUM 12</td>
<td>Novel insights on uterine immunology during pregnancy and disease</td>
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<td>WORKSHOP 15</td>
<td>Advances in the use of doppler ultrasonography in cattle reproduction</td>
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<td>Nutritional strategies to improve fertility in small and large ruminants</td>
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PROGRAMME AT A GLANCE

THURSDAY 1ST JULY 2021

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<td>8.00</td>
<td>PLENARY 4</td>
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<td>10.00</td>
<td>Semen quality, semen omics: relation with male fertility</td>
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<td>12.30</td>
<td>Adding a new dimension to reproduction</td>
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<td>Closing Ceremony</td>
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ICAR BOARD MEETINGS

Sunday 27th June 2021
17.00 Executive Committee ROOM VERDE

Monday 28th June 2021
10.45 - 12.15 Standing Committee ROOM VERDE

Tuesday 29th June 2021
10.45 - 12.15 Standing Committee ROOM VERDE

Thursday 1st July 2021
13.00 Executive Committee ROOM VERDE

SCIENTIFIC PROGRAMME

MONDAY 28TH JUNE 2021

8.00 - 9.00
OPENING CEREMONY & SIMMET PRIZE
AUDITORIUM

9.00 - 11.00
PLENARY SESSION 1
AUDITORIUM

SUSTAINABLE BREEDING IN A CHANGING CLIMATE

9.00 Breeding animals to feed people: the many roles of animal reproduction in ensuring global food security. Robin White (Germany)
9.40 Managed wildlife breeding: an undervalued conservation tool? Imke Lueders (Germany)
10.20 The dog 2.0: lessons learned from the past. Bart Broeckx (Belgium)

11.00 - 11.30 Coffee break

11.00 - 13.30 WORKSHOP 19
ROOM ITALIA

OVERVIEW ON EQUINE CHORIONIC GONADOTROPIN (ECG, PMSG) USE IN BREEDING PROTOCOLS: RESULTS OF USE OF THE NATIVE PRODUCT AND INTRODUCTION OF A RECOMBINANT ALTERNATIVE

11.00 Welcome and Opening.
Reuben Mapletoft (University of Saskatchewan, Canada)
Lucas Cutaia (Syntex, Argentina)

11.15 Structure-function relationships of natural equine chorionic gonadotropin eCG (PMSG), eLH and recombinant eLH/CG.
Yves Combarnous (INRA, France)

11.45 Equine chorionic gonadotropin (eCG) in sheep and goats: Past, present and future. Alejo Menchaca (IRAUy, Uruguay)

12.00 Use of eCG for manipulation of reproductive function in swine.
Johannes Kauffold (University of Leipzig, Germany)

12.15 The use of eCG in reproductive programs in cattle: Physiological basis and productive impact. Gabriel Bo (IRAC, Argentina), Pietro Barusselli (USP, Brazil)

12.45 Multi-glyco engineering of recombinant gonadotropin alpha-beta fusion protein confers in vivo eCG- (PMSG) like activity.
Juan Manuel Pérez Sáenz (IBYME, Argentina)

13.00 Results of field trials evaluating a synthetic eCG-Like glycoprotein produced by Syntex for use in different species.
Lucas Cutaia (Syntex, Argentina)

13.15 Questions, Discussion and Closing
11.10 - 12.00 WORKSHOP 20   ROOM COBALTO
Sponsored by IMV Technologies

BOVINE SEMEN PRESERVATION MEDIA: HIGH PERFORMANCE WITHOUT USE OF MILK OR EGG YOLK
Valère Verdier (France)
Agnes Camus (France)

11.30 - 12.30 POSTER SESSION 1

12.30 - 14.00 Lunch

14.00 - 16.30 SYMPOSIUM 1   ROOM AZZURRA

THE NONCONFORMIST: CONCEPTUS-MATERNAL COMMUNICATION IN THE DOG
Chair: Mariusz Kowalewski (Switzerland)

14.00 Impact of the oviductal environment on IVF success and early embryo development in the dog. Alexander J. Travis (USA)
14.30 Embryo-maternal communication in the canine uterus at pre-implantation. Sabine Schater-Somi (Austria)
15.00 Conceptus-maternal communication during maintenance and termination of pregnancy in the dog. Mariusz P. Kowalewski (Switzerland)

Oral Communications:
15.30 Cyclooxygenase2 (COX2) gene expression in canine follicular cells: influence of GDF9 and BMP15. Monica De los Reyes (Chile)
15.45 A modified Aglepristone protocol for mid-pregnancy termination in large dogs. Rita Payan-Carreira (Portugal)
16.00 In-vitro investigation of antigestagen-mediated effects in canine decidual cells. Ali Kazemian (Switzerland)
16.15 Deciphering the roles of leptin and the RhoA/Rho kinase pathway on primary uterine inertia in the bitch. Orsolya Balogh (USA)

14.00 - 16.30 SYMPOSIUM 2   ROOM CIANO

DEVISING NEW GONADOTROPINS FOR THE FUTURE...WHICH STRATEGIES, WHICH USES?
Chair: Marc-Antoine Driancourt (France)

14.00 What is the ideal FSH profile to maximize ovarian response in donor cows? Gabriel Bo (Argentina)
14.40 Gonadotropin priming before OPU: what are the benefits in cows and calves? Richard Fry (Australia)
15.20 Long acting/single shot recombinant FSH. Neil Sanderson (New Zealand)

Oral Communications:
16.00 Effect of 2000 IU of synthetic eCG-like glycoprotein on the follicular development and ovulation in beef cows [Bos taurus]. Lucas Cutaia (Argentina)

16.15 Efficiency of repeated superstimulations on ovum pick-up and in vitro production [OPU-IVP] of cattle embryos and donor health. Jacob Thundalith (Canada)

14.00 - 16.30 SYMPOSIUM 3   ROOM ITALIA

CLONING AND GENOME EDITING
Chair: Lino Loi (Italy)

14.00 Somatic Cell Nuclear Transfer (SCNT): state of the art and applications. Josè Cibelli (USA)
14.30 How to improve mouse cloning. Afsuo Ogura (Japan)
15.00 Current progress of genome editing in livestock. Kho Lee (USA)
15.30 CRISPR in livestock: from editing to printing. Alejo Menchaca (Uruguay)

Oral Communications:
16.00 Timing of mRNA CRISPR/Cas9 microinjection with respect to in vitro fertilization affect embryo development and mutation efficiency in porcine embryos. Sergio Navarro-Serra (Spain)
16.15 In vitro production of zebra cloned embryos. Andres Gambini (Argentina)

14.00 - 16.30 SYMPOSIUM 4   AUDITORIUM

NEW ASPECTS OF CORPUS LUTEUM REGULATION TOWARD SUCCESSFUL PREGNANCY
Chair: Akio Miyamoto (Japan)

14.00 Roadmap to pregnancy in the first 7 days post-insemination in the cow: Immune cross-talk in the corpus luteum, oviduct and uterus. Akio Miyamoto (Japan)
14.30 Roadmap to pregnancy during the period of maternal recognition in the cow: Changes within the corpus luteum associated with luteal rescue. Joy Pate (USA)
15.00 Impact of the corpus luteum on survival of the developing embryo and early pregnancy in mares. Carlos RF Pinto (USA)
15.30 Factors affecting the fate of canine corpus luteum: Potential contributors for pregnancy and non-pregnancy. Paula Papa (Brazil)

Oral Communications:
16.00 Are L-lactate effects during the folliculo-luteal transition mediated via NMDA receptors in bovine granulosa cells? Anya Baufeld (Germany)
16.15 Systemic administration of β-NGF from llama seminal plasma at LH peak induces an earlier increase of luteal progesterone in dairy heifers. Marcelo Ratto (Chile)

16.30 - 17.00 Coffee break

17.00 - 18.30 WORKSHOP 1   AUDITORIUM

OPU: HORMONES, TIME AND FOLLICULAR SIZE
Chair: Marc-André Sirard (Canada)

17.00 Using FSH and time to optimize oocyte quality prior to OPU. Patrick Blondin (Canada)
17.30 Follicular wave synchronization prior to ovum pick-up. Marcelo Marcondes Seneda (Brazil)
18.00 Follicle priming or pre-maturation to increase oocyte quality. Kenichiro Sakaguchi (Japan)
REPRODUCTION OF CULTURED FISH

17.00 Broodstock management of cultured grey mullet (Mugil cephalus): application of a therapeutic approach to resolve reproductive dysfunctions. Hanna Rosenfeld (Israel)
17.18 Physiological and endocrine mechanisms behind postsmolt maturation in Atlantic salmon. Birgitta Norberg (Norway)
17.36 The reproduction of European eel in captivity: a scientific challenge with multiple facets. Juan F. Asturiano (Spain)
17.54 The male contribution to reproductive success: paternal transmission of environmental effects to the spawn. María Paz Herráez (Spain)
18.12 Sperm motility signaling in fishes. Hadi Alavi (Iran)

WORKSHOP 3

PREGNANCY AND PERINATAL CARE

17.00 Biomarkers for placental disease and fetal well-being. Igor Frederico Canisso (USA)
17.30 Is stress affecting parturition and neonatal adaptation in the horse? Christina Nagel (Austria)
18.00 Maternal transmission of microbiome in mammals. Elena Biagi (Italy)

WORKSHOP 4

PLURIPOTENT EMBRYONIC STEM CELLS: PAST, PRESENT AND FUTURE

17.00 Historical perspective on ESC and iPSC in companion and domestic animals. Jorge Piedrahita (USA)
17.30 Capturing pluripotency in bovine embryonic stem cells: perspectives for in vitro breeding. Pablo Ross (USA)
18.00 Establishment of porcine expanded potential stem cells. Monika Nowak-Imialek (Germany)

WORKSHOP 5

IMPROVING LIVESTOCK PRODUCTION: BEYOND GENETIC GAIN

17.00 IVF and genomic screening in pigs and cattle to improve food production. Darren Griffin (UK)
17.30 Freezing eggs to make bacon. Katie Fowler (UK)
18.00 Parental effects on production relevant traits in pigs. Simon Harvey (UK)
TUESDAY 29TH JUNE 2021

8.30 - 10.30 PLENARY SESSION 2 AUDITORIUM

EXTRACELLULAR VESICLES IN FEMALE REPRODUCTIVE FUNCTION

Chair: Pascal Mermillod (France)

8.30 Extracellular vesicle mediated molecular signaling in ovarian follicle: implication for oocyte developmental competence. Dawit Tesfaye (USA)

9.10 Extracellular vesicles: multi-signal messengers in the gametes/embryo-oviduct crosstalk. Carmen Alminana (Switzerland)

9.50 Extracellular vesicles: novel regulators of conceptus-uterine interactions? Thomas Spencer (USA)

10.30 - 11.00 Coffee break

11.00 - 12.00 POSTER SESSION 2

10.30 - 12.00 WORKSHOP 21 ROOM AZZURRA Sponsored by Ozolea

STEM CELLS AND THEIR PRODUCTS: APPLICATIONS IN REPRODUCTIVE DISEASES OF DOMESTIC ANIMALS

Chair: Fausto Cremonesi (Italy)

Chair: Xavier Donadeu (Scotland)

10.30 Endometrial Mesenchymal Stem/Stromal Cells – regenerative Cristina Esteves (Scotland)

10.50 Mesenchymal cell secretome applications in large animal reproductive regenerative medicine. Anna Lange-Consiglio (Italy)

11.10 Mesenchymal Stem Cells in livestock cattle: potential applications in reproduction for germelines derivation. Oscar Alejandro Peralta Troncoso (Chile)

11.30 Intra-uterine administration of veterinary device Ozolea-Metr in bovine enhances the endometrium trophism and reduces the repeat breeders: in vivo and in vitro results. Andrea Bignotti (Italy)

11.40 Discussion

10.50 - 11.30 WORKSHOP 22 ROOM COBALTO Sponsored by IMV Technologies

REPRODUCTION TECHNOLOGIES OF THE FUTURE IN THE DATA DRIVEN BOVINE INDUSTRY.

Lee Cairns (Scotland)

Craig Holmes (Scotland)

12.00 - 13.30 Lunch

13.30 - 16.00 SYMPOSIUM 5 ROOM ITALIA

Chair: Pierre Comizzoli (USA)

13.30 Reproductive biology and biotechnologies in wild felids. Ampika Thongphakdee (Thailand)

14.00 Assisted reproduction in wild bovids. Gabriela Mastromonaco (Canada)

14.30 Understanding and sustaining reproduction at the Panama Amphibian Rescue and Conservation Project. Gina Delia Togna (Panama)

15.00 Marsupials the alternative therians – From gametes to birth. John Rodgers (Australia)

Oral Communications:

15.30 Enigmatic story of reproductive physiology behind the scaly armor: non-invasive assessment of reproductive cycle and detection of embryonic diapause in wild taiwanease pangalins (manis.p. Pentadactyla) using fecal steroid metabolites. Arora Bharti (India)

15.45 Anti-Müllerian hormone (AMH) levels in Amazonian manatees (Trichechus inunguis): sex and age class variations. Rodrigo Amaral (Brasil)

13.30 - 16.15 SYMPOSIUM 6 ROOM AZZURRA

Chair: Graça Ferreira-Dias (Portugal)

13.30 Challenges in studying preimplantation embryo-maternal interaction in cattle. Dimitrios Rizos (Spain)

14.00 Neutrophils and monocytes in the equine endometrium: friends or foes? Dariusz Skarzynski (Poland)

14.15 Preventing postpartum uterine disease in dairy cattle depends on avoiding, tolerating and resisting pathogenic bacteria. Iain Martin Sheldon (UK)

Oral Communications:

15.00 Ovulation inducing factors in rabbits (Oryctolagus cuniculus): the role of IL1. Margherita Maranesi (Italy)

15.15 Mating induces down-regulation of mir-671, a key repressor of binding function by fibronectin type 1 (FN1) in the sow internal genital tract. Manuel Alvarez-Rodriguez (Spain)

15.30 Maternal age results in altered endometrial miRNA profile in a novel bovine model. Thiago Texeira (Australia)

15.45 Effect of growth factors derived from commercial ovine placental extract on early pregnancy loss in mares. Hamed Farnia (Iran)

13.30 - 16.00 SYMPOSIUM 7 AUDITORIUM

Chair: Geoffrey Dahl (USA)

13.30 Effects of periconceptional heat stress on primiparous and multiparous daughters of Holstein dairy cows. Shelly Rhoads (USA)

14.00 Effects of temperature rise during in vitro maturation on embryo production in dairy and beef cattle. Georgios S. Amiridis (Greece)

14.15 Late gestation heat stress: effects on dam and daughter. Geoffrey Dahl (USA)

14.45 Elevated environmental temperature increases the incidence of uterine disease in dairy cows independent of elevated bacterial load. John Bromfield (USA)

10.30 - 11.00 Coffee break

11.00 - 12.00 POSTER SESSION 2

10.30 - 12.00 WORKSHOP 21 ROOM AZZURRA Sponsored by Ozolea

STEM CELLS AND THEIR PRODUCTS: APPLICATIONS IN REPRODUCTIVE DISEASES OF DOMESTIC ANIMALS

Chair: Fausto Cremonesi (Italy)

Chair: Xavier Donadeu (Scotland)

10.30 Endometrial Mesenchymal Stem/Stromal Cells – regenerative Cristina Esteves (Scotland)

10.50 Mesenchymal cell secretome applications in large animal reproductive regenerative medicine. Anna Lange-Consiglio (Italy)

11.10 Mesenchymal Stem Cells in livestock cattle: potential applications in reproduction for germelines derivation. Oscar Alejandro Peralta Troncoso (Chile)

11.30 Intra-uterine administration of veterinary device Ozolea-Metr in bovine enhances the endometrium trophism and reduces the repeat breeders: in vivo and in vitro results. Andrea Bignotti (Italy)

11.40 Discussion

10.50 - 11.30 WORKSHOP 22 ROOM COBALTO Sponsored by IMV Technologies

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14.45 Elevated environmental temperature increases the incidence of uterine disease in dairy cows independent of elevated bacterial load. John Bromfield (USA)
15.00 Impact of heat stress on lactational performance of dairy cows. Sha Tao (USA)
15.30 Lactation status during gestation is associated with the size of the ovarian reserve of female offspring in dairy cattle. Francesca Mossa (Italy)
15.45 Effects of heat stress on mammary function: mediators and mechanisms. Tom McFadden (USA)

13.30 - 16.00 SYMPOSIUM 8 ROOM CIANO

CryoPreservation: Freezing, Vitrification, Freezing-Drying
13.30 Vitrification in ART; past, present, and future. Gabor Vajta (Australia)
13.50 Dry Biobanking as a Conservation Tool in the Anthropocene. Joseph Saragusty (Italy)
14.10 Cryopreservation in endangered species - a way to win time for new conservation solutions. Thomas Hildebrandt (Germany)
14.30 VitDrying (vitrification and drying) of reproductive cells and stem cells. Amir Arav (Israel)

Oral Communications:
15.00 Assessment of cryotolerance of IVF bovine blastocysts after vitrification and one-step-warming using an economical device. Alejandro Maruri (Argentina)
15.15 Cellular effects of Antifreeze Proteins (AFPs) type I and III in extender for sheep semen cryopreservation. Lucas Francisco Leodido Correia (Brazil)
15.30 Development of a novel vitrification device combined minimum essential volume and large holding capacity. Ximo Garcia-Dominguez (Spain)
15.45 Effect of DHA and DHA-loaded cyclodextrin on the equine frozen semen quality. Edinalma Rodrigues da Silva-Junior (Brazil)

16.00 - 16.30 Coffee break

16.30 - 18.00 WORKSHOP 7 ROOM VERDE

Advances in Sperm Cryopreservation Technology for Conservation of Avian Genetic Resources
16.30 Cryoprotective vs toxic action of non-permeant cryoprotectants: effect on sperm and embryos. Silvia Cerolini (Italy)
17.00 Role of endogenous and external factors on poultry sperm cryoresistance. Julian Santiago-Moreno (Spain)
17.20 Membrane lipid regulation of cryopreserved sperm function in poultry. Atsushi Asano (Japan)
17.40 Current advantages and limits in the implementation of a sperm cryobank for avian genetic resources. Elisabeth Besbois (France)

16.30 - 18.00 WORKSHOP 8 AUDITORIUM

Improved Mammalian Embryo Production by Novel Biomimic-Designed 3D and Microfluidic Cell Culture Approaches
16.30 Engineering the female reproductive tract using microfluidic devices provide new insights into ovulation and ovarian cancer. Joanna Burdette (USA)
17.00 Modeling the early embryonic environment at the air-liquid interface. Jennifer Schön (Germany)

16.30 - 18.00 WORKSHOP 9 ROOM COBALTO

Reproductive Toxicology in Marine Mammals
16.30 Reproduction in Baltic seals - history of environmental pollution effects and present status. Sara Persson (Sweden)
17.15 Under pressure - the scientific challenge of studying effects of environmental pollutants on the reproductive success of harbour porpoises (Phocoena phocoena). Tina Kesselring (Germany)

16.30 - 18.00 WORKSHOP 10 ROOM CIANO

The Gait of Assisted Reproduction in the Equids
16.30 An extensive characterization of horse oocytes suggests the use of different cultural strategies in order to improve in vitro embryo production. Federica Francisi (Italy)
17.00 Embryo and recipient mare cycle characteristics affect the likelihood of pregnancy and foaling after transfer of ICSI embryos. Tom A.E. Stout (The Netherlands)
17.20 Fatty acid composition of the equine sperm plasma membrane and its implication on sperm function. Christine Autrich (Austria)
17.40 Assisted reproduction in donkeys: a new challenge. Diana Fanelli (Italy)

16.30 - 18.00 WORKSHOP 11 ROOM ITALIA

Gonadotropin Secretion in Cattle and Sheep: New Discoveries
16.30 Intra-pituitary mechanisms underlie annual time measurement to regulate seasonal reproduction. Domingo Tortonese (UK)
17.00 Discoveries of new receptors on bovine gonadotrophs: possible new mechanisms to control reproductive functions. Hiroya Kadokawa (Japan)
17.30 Use of an antiestrogen delivered centrally to override the estradiol negative feedback on LH secretion during anestrus in ewes. Terry Nett (USA)
Is a new star born? NGF role on ovulation induction and sperm traits

16.30 Induced ovulation in South American camels: new insights on the role of b-NGF. Mauricio Silva (Chile)
17.00 Effect of nerve growth factor on the main traits of rabbit sperm. Cesare Castellini (Italy)
17.20 Role of nerve growth factor in rabbit female reproduction. Rosa M Garcia-Garcia (Spain)
17.40 Insights into NGF role in bovine reproduction. Fabio Lima (USA)

WEDNESDAY 30TH JUNE 2021

8.30 - 10.30 PLENARY SESSION 3 AUDITORIUM
EPI/GENETICS GENOMICS IN REPRODUCTION
8.30 The impact of prenatal environment on postnatal life and performance. Antonio Gonzalez-Bulnes (Spain)
9.00 Untangling early embryogenesis using single cell -omics. Ramiro Alberio (UK)
9.30 Fetal development and cardiovascular health: causes and consequences. Janna Morrison (Australia)
10.00 Interferon Tau: influences on growth and development of the conceptus. Fuller Bazer (USA)
10.30 - 11.00 Coffee Break
11.00 - 12.00 POSTER SESSION 3
12.00 - 13.30 SYMPOSIUM 9 ROOM ITALIA
NEW APPROACHES IN BUFFALO REPRODUCTIVE MANAGEMENT
13.30 Embryo production in buffalo cows. Pietro Baruselli (Brasil)
14.00 Exogenous and endogenous factors in seasonality of reproduction in buffaloes; a review. Michael D’Occhio (Australia)
14.30 Reproductive management in buffalo by artificial insemination. Gianluca Neglia (Italy)
15.00 Synchronization and re-synchronization strategies to improve fertility in Dairy Buffaloes. Nasim Ahmad (Pakistan)

13.30 - 16.00 SYMPOSIUM 10 ROOM AZZURRA
REPRODUCTION IN COMPANION ANIMALS
13.30 Cold Case: Small Animal gametes cryobanking. Gaia Cecilia Luvini (Italy)
14.00 Small animal reproduction: scientific facts versus dogmas or unverified beliefs. Alain Fontbonne (France)
14.30 The bitch around parturition. Sebastian Art (Germany)
15.00 Normal and abnormal sperm transport in female dogs. Gary England (UK)
15.30 Imaging of the male reproductive tract: not so easy as it looks like. George Mantziaras (Greece)

13.30 - 16.00 SYMPOSIUM 11 ROOM CIANO
NEW IMAGING SYSTEMS FOR ASSESSING GAMETE AND EMBRYO QUALITY
13.30 Raman spectroscopy based approach to study the female gamete. Luisa Bogliolo (Italy)
14.00 Oocyte and embryo evaluation by AI and multi-spectral auto-fluorescence imaging. Jeremy Thompson (Australia)
14.30 The label-free microscopy a non-invasive new tool to assess gametes and embryo quality. Marcello Rubessa (USA)
15.00 Assessments of sperm quality integrating morphology, bioenergetics and cell signaling. Eduardo Roldan (Spain)

13.30 - 16.00 ORAL COMMUNICATIONS
13.30 Effect of frame rate on stallion sperm motility evaluated by CASA-Mot system. Sabrina Gacem (Algeria)
15.45 Identification of secretory proteins from bovine cumulus oocyte complexes during in vitro maturation. Jasmin Walter (Switzerland)

13.30 - 16.00 SYMPOSIUM 12 AUDITORIUM
NOVEL INSIGHTS ON UTERINE IMMUNOLOGY DURING PREGNANCY AND DISEASE
13.30 Modulation of the maternal immune system by the developing conceptus. Troy Off (USA)
14.00 Immunological memory of the maternal-fetal interface: implications for reproductive management of mares. Doug Antczak (USA)
14.30 Immunological memory in the postpartum uterus: potential use of vaccines to control metritis. Vinicius Machado (Brasil)
15.00 Modulation of immune function in the bovine uterus peripartum. Stephen LeBlanc (Canada)

13.30 - 16.00 ORAL COMMUNICATIONS
13.30 Assessment of the anti-inflammatory potential of horse endometrial and adipose mesenchymal stem cells in an vivo model of mare induced endometritis. Fidel Castro (Chile)
15.45 Uterine immune events associated with embryo presence and early placentation in the dog. Miguel Tavares Pereira (Switzerland)
16.00 - 16.30  Coffee Break

16.30 - 18.00  WORKSHOP 13  ROOM ITALIA

TISSUE INVASION MECHANISMS OF TROPHOBLAST IN VETERINARY SPECIES

Chair: Amanda de Mestre (UK)

16.30  Molecular mechanisms of equine trophoblast development and invasion, Amanda de Mestre (UK)
17.00  Genetic regulation of equine chorionic girdle development: linking invasion with immunomodulation, Doug Antczak (USA)
17.30  Convergent evolution of pregnancy-specific glycoproteins in animal species with highly invasive trophoblasts, Robert Kammerer (Germany)

16.30 - 18.00  WORKSHOP 14  ROOM AZZURRA

BOVINE REPRODUCTION

Chair: Ana Meikle (Uruguay)

16.30  Recent advances in dairy research that affect reproductive management in confinement and grazing systems, Matthew Lucy (USA)
17.15  Uterine disease in confined and grazing dairy productive systems with emphasis on risk factors and management, Scott McDougall (New Zealand) and Wolfgang Heuwieser (Germany)

16.30 - 18.00  WORKSHOP 15  AUDITORIUM

ADVANCES IN THE USE OF DOPPLER ULTRASONOGRAPHY IN CATTLE REPRODUCTION

Chair: João Henrique Moreira Viana (Brazil)

16.30  Application of color Doppler ultrasonography to improve efficiency of hormonal treatment; estimation of follicle and luteal activity and prediction of estrous cycle, Motozumi Matsui (Japan)
16.50  Uterine and luteal blood flow after artificial insemination and embryo transfer in cattle, Heinrich Bollwein (Switzerland)
17.10  Potentials and flaws of the early diagnosis of nonpregnancy based on corpus luteum blood flow, João Henrique Moreira Viana (Brazil)
17.40  Applications of color Doppler ultrasonography in commercial fixed-time programs in cattle, Guilherme Pugliesi (Brazil)

16.30 - 18.00  WORKSHOP 16  ROOM VERDE

EMBRYONIC DIAPAUSE

Chair: Susanne Ulbrich (Switzerland)

16.30  Putting pregnancy on hold down under, Jane Fenelon (Australia)
17.00  Molecular cues controlling embryonic developmental pace, Vera van der Weijden (Switzerland)
17.30  Embryonic derived signals for communicating with the uterus: Clues from studying embryonic diapause in mice, Shuangbo Kong (China)

16.30 - 18.00  WORKSHOP 17  ROOM CIANO

NUTRITIONAL STRATEGIES TO IMPROVE FERTILITY IN SMALL AND LARGE Ruminants

Chair: Graeme Martin (Australia)

16.30  Role of fatty acids on fertility in dairy cows, José E. P. Santos (USA)
17.00  Managing for fertility in dairy cows, the oocyte deserves center stage, Jo Leroy (Belgium)
17.30  Perspectives on nutrition-reproduction relationships - research priorities and management needs, Graeme Martin (Australia)

16.30 - 18.00  WORKSHOP 18  ROOM COBALTO

GENETICALLY TAILORED PIGS AS DISEASE MODELS AND ORGAN DONORS FOR XENOTRANSPLANTATION

Chair: Eckhard Wolf (Germany)

16.30  Modelling Duchenne muscular dystrophy in pigs - recent progress, Hiroshi Nagashima (Japan)
16.50  A pig model for Hutchinson-Gilford progeria syndrome, Vicente Andrés (Spain)
17.10  Xenografting of gene edited immunodeficient pigs with human hematopoietic stem cells, Jorge Piedrahita (USA)
17.30  Recent breakthroughs in pig-to primate xenotransplantation, Eckhard Wolf (Germany)

20.00  EVENING: CONGRESS DINNER

Chair: Graeme Martin (Australia)
Chair: Eckhard Wolf (Germany)
Chair: Amanda De Mestre (UK)
THURSDAY 1ST JULY 2021

8.00 - 10.00  PLENARY SESSION 4  AUDITORIUM

Chair: Marc Yeste (Spain)

SEMEN QUALITY. SEMEN ÓMICS: RELATION WITH MALE FERTILITY

8.00  Contribution of sperm and seminal proteins on sperm function, cryotolerance and fertilizing ability in the pig. Jordi Roca (Spain)

8.40  New insights into the function of bovine and other animal sperm and seminal plasma proteins on fertilizing ability: the relevance of epididymal maturation. Xavier Druart (France)

10.20  Sperm surface changes and their consequences for sperm transit through the female reproductive tract. Jessica Rickard (Australia)

10.00 - 10.30  Coffee Break

10.30 - 12.30  PLENARY SESSION 5  AUDITORIUM

Chair: Tiziana A.L. Brevini (Italy)

ADDING A NEW DIMENSION TO REPRODUCTION

10.30  A 3D approach to reproduction. Tiziana A.L. Brevini (Italy)

11.10  Oviduct on a chip. Pedro Costa (Portugal)

11.50  Engineering the 3D printed bioprosthetic ovary. Monica M. Laronda (USA)

12.30 - 13.00  CLOSING CEREMONY

THE MICHELSON PRIZE AND GRANTS

Encouraging and incentivizing scientists to make what would be the single biggest breakthrough in the fight against animal overpopulation.

UP TO $750,000 PER GRANT

FOR THE PURSUIT OF NEW STERILIZATION TECHNOLOGY

THE $25 MILLION PRIZE

As much as we want to give away this $25 million, there are some criteria that need to be met...

- The winning entry will be safe and effective for cats and dogs, both male and female.
- It will ablate sex steroids and/or their effects.
- There will be a viable pathway for regulatory approval.
- It will be suitable for use in a field setting.
- The manufacturing process and cost will be reasonable.
- It must be a single-dose, permanent, nonsurgical sterilant.

Qualifying scientists will have an innovative approach to the development of a single-dose, permanent, non-surgical sterilization method for male and female dogs and cats. Proposed research doesn’t need to meet all the criteria for the Michelson Prize, but it would definitely help your chances of receiving grant funding.

For more information, visit: MICHELSONPRIZEANDGRANTS.ORG

The Michelson Prize & Grants is open to any entity and all well-qualified individuals or groups. Scientists from a diverse range of fields are encouraged to apply.
SIMMET PRIZE

Through the auspices of the International Congress of Animal Reproduction (ICAR), Minitube International, a science-driven biotechnology company, is sponsoring the 4th Simmet Prize in Assisted Reproduction.

The award, which recognizes the scientific advances in assisted reproduction pioneered by Dr. Ludwig Simmet, founder of Minitube, recognizes an active research scientist for outstanding basic and applied research published during the previous six years in the area of assisted reproductive technologies for animal production systems.

The Simmet Prize, which comes with a 50,000 euro honorarium, is the largest of its type in the world and is presented every four years at the ICAR meeting.

Dr. Gabriel Bó of the Instituto de Reproducción Animal Córdoba (IRAC) in Córdoba, Argentina is the recipient of the 2020 Simmet Prize for Assisted Reproduction.

The prize, which is the most prestigious award in animal reproduction and one of the largest of its kind, was given for the pioneering efforts of Dr. Bó to develop practical protocols for fixed-time artificial insemination, superovulation and embryo transfer in cattle.

Dr. Bó is currently President and Director of Research and Post-graduate training at IRAC and Professor of Obstetrics and Biotechnology of Reproduction at the Veterinary School of the Instituto de Ciencias Basicas y Aplicadas, Universidad Nacional de Villa Maria in Cordoba, Argentina. IRAC is one of the few organizations of its kind with missions in research, teaching, and clinical service including embryo transfer, artificial insemination, and gamete and embryo cryopreservation. Over 1300 veterinarians in South and Central America have received education on animal reproduction since IRAC opened in 1995.

Bó and his colleagues have developed what are now the de facto standard protocols for superovulation in cattle. Research conducted by him and his collaborators on estrus synchronization and fixed-time artificial insemination has been one of the key drivers for implementation of these technologies by producers throughout South America and globally.

Together, these practices are revolutionizing genetic selection and reproductive management of cattle.

FINANCIAL SUPPORT TO YOUNG RESEARCHERS

More than 130 applications received for the Financial Support to Young Researchers. We would like to thank everyone of our applicants.

The Committee had a very difficult task of selecting the 10 recipients out of such a large pool of worthy applicants. Congratulations to the award recipients:

- Almeida Praxedes Erika, Brazil
- Bertuzzi Mariana Lucia, Argentina
- Bharti Arora, India
- De Oliveira Santos Maria Valeria, Brazil
- Mohammed Stephanie, Trinidad and Tobago
- Nabi Ibrahim, Algeria
- Navarro Micaela, Argentina
- Panahi Farnaz, Iran
- Santos Jimenez Zurisaday, Mexico
- Von Mengden Lucia, Brazil
REGISTRATION INFORMATION

All delegates must register for the congress. Registration fees are as follows:

UNTIL 15th MAY 2021

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* Registration in the STUDENT category is only open to people able to provide a valid official certificate. To validate this, documentary proof of this status must be forwarded to the e-mail: registrations@icar2020.org

FROM 16th MAY TO 14th JUNE 2021

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VAT 22% included

THE REGISTRATION FEE INCLUDES:

- Admission to full scientific program
- Congress Kit
- Welcome Reception
- Buffet Lunches (3 services)
- Coffee breaks (7 services)
- Access to exhibition and posters
- Certificate of Attendance

The registration fee for Accompanying person includes:

- Welcome Reception

Extra Social Program Fee (per person):

- Jazz & Food Event, 28th June 2021 € 70.00
- Congress Dinner, 30th June 2021 € 100.00

VAT 10% included

REMITTANCE

Registration fees shall be paid by credit card or bank transfer through the on-line system available. When paying by bank transfer, a copy of the transfer receipt must be sent at registrations@icar2020.org

Registrations without proof of payment will not be accepted. The organising secretariat will send registration receipt upon receipt of payment, by e-mail. Please be sure your e-mail address is filled in correctly.

PERSONAL INVITATION FOR VISA PURPOSES

To facilitate congress attendance a personal invitation can be sent on request. This invitation does not exempt the recipient from registering and paying the proper congress fee. Please inform the congress secretariat if you need a personal invitation letter.

CANCELLATION AND REFUND

Cancellations must be sent to registrations@icar2020.org

The amount equal to 50% of the fee paid will be refunded for cancellations received by 31st May 2021. After 31st May 2021 no refunds will be issued.

All refunds will be paid in euros after the congress.

CANCELLATION OF THE CONGRESS

The congress secretariat reserves the right to cancel the congress, shift venue, or change dates without notice, in case of “force majeure”. Neither VET International or the Congress Organising Committee shall be liable for any damage claims.

LIABILITY AND INSURANCE

Registration fees do not include the insurance of participants against personal accidents, sickness and cancellations by any party, theft, loss or damage to personal possessions. Participants are advised to take out adequate personal insurance to cover travel, accommodation, cancellation and personal effects.
NEW CALL FOR ABSTRACTS

We are glad to inform you that there will be a new call for the next edition.
It will be possible to submit new and original works that will be reviewed for poster presentation during the Congress.

Please be also informed that all the abstracts that have been submitted and accepted for the previous edition will be cancelled; since these abstracts have been presented in 2019 and most of them would need a review or an update for the 2021 edition, the Scientific Committee has decided to restart a new submission also for them.

On this basis, we are also asking to all speakers (including those of Industry Workshops) to send again the abstract of their speech.

All the abstracts will be reviewed by the Scientific Committees once again and you will receive the final results and comments. We understand the concern this may cause and we would like to inform you that this is the best solution to guarantee to the authors all the possibilities, both if they would like to update a research and if they would like to present a new one as well.

As we asked last time, the content must not have been previously published in academic journals or subjected to peer review.

ABSTRACT SUBMISSION

ABSTRACT TOPICS

• Bovine reproduction
• Buffalo reproduction
• Camelid reproduction
• Canine and feline reproduction
• Control of estrous cycle
• Cryobiology of gametes and embryos
• Embryo development and differentiation
• Embryogenesis in vitro
• Female reproductive physiology
• Horse reproduction
• Imaging methods in reproduction
• Male reproductive physiology
• Metabolism and reproduction
• Neuroendocrine control of reproduction
• Nutrition and reproduction
• Ovary and oocyte
• Oviduct
• Pig reproduction
• Pregnancy, placental function and parturition
• Reproduction in avian species
• Reproduction in exotic animals and wild species
• Reproduction in fish
• Reproduction in sheep and goats
• Reproductive pathologies
• Reproductive system diseases
• Spermatology and sperm quality
• Testis
• Uterus
• Other

Congress delegates are invited to submit abstracts of their scientific work for presentation as a free communication at ICAR 2020.
Abstracts of scientific contributions covering the topics below are welcome.

GENERAL REQUIREMENTS

The text must be clear, concise, and written in proper English.
The content must not have been previously published in academic journals or subjected to peer review. Significant technical information must not be withheld.
Abstracts must absolutely contain results. Statements such as “results will be discussed” are not acceptable and will lead to rejection.
At least one Congress registration is needed every two accepted abstracts; abstracts not respecting these indications will be not published.

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STRUCTURE OF THE ABSTRACT
Abstracts can be structured and may include:
1. BACKGROUND a brief introduction stating the purpose of the investigation and its relevance to laboratory medicine;
2. METHODS a description of the methodology used;
3. RESULTS to be supported by statistical analysis or other evidence to show their validity;
4. CONCLUSIONS The body of the abstract must not exceed 2300 characters, spaces included.

GENERAL INFORMATION
Submission deadline: 30th November 2020
Confirmation of receipt: Receipt of the abstract will be acknowledged by e-mail immediately after submission.
Notification of acceptance or rejection: authors will be notified of acceptance or rejection by 30th January 2021.
Registration: At least one Congress registration is needed every two accepted abstracts; abstracts not respecting these indications will be not published.
Deadline registration: 31st March 2021

For information regarding poster submission: posters@icar2020.org

IMPORTANT NOTICE
Abstract Authors are asked to indicate the most suitable topic for presentation of their work. Abstracts should be submitted via the on-line submission system only. Do not send in an abstract more than once!

HOW TO REACH THE CONFERENCE VENUE
Bologna is a compact city, it is friendly, positive, cosmopolitan, easy to get around. The public transport system efficiently connects all points in the city, from the centre to the suburbs. City buses are frequent and cheap. Single tickets can be purchased at the authorized points of sale or directly on board. They must be stamped at the beginning of the journey and the validity is 75 minutes from the time of validation. Taxis can be hired at taxi ranks located near the main points of interest, booking the service calling the city’s taxi co-operatives.

BY BUS
From the City Centre Bus N. 28 to Palazzo della Cultura e dei Congressi From the Station FS Bus N. 35 or 39 to Palazzo della Cultura e dei Congressi
From Palazzo della Cultura e dei Congressi to the Station Bus n. 35 or 38
€ 1.30 One way valid 60 minutes
€ 12.00 city pass – 10 single journeys

BY TAXI
+39 051 372727
+39 051 4590

BOLOGNA WELCOME
Bologna Welcome will be present during the congress with a booth. During the Congress Bologna Welcome can help you with tourist information, bus tickets and tour tickets.
USEFUL INFORMATION

HOW TO REACH BOLOGNA
There are many different and easy ways to reach Bologna.

BY PLANE
Guglielmo Marconi International Airport. 15 minutes by bus from Historic Downtown, connecting Bologna to the main Italian and European airports.

To city centre
The Aerobus shuttle bus connects Bologna Airport to the city centre. The service operates from 5am to 12pm; buses leave approx. every 10 minutes. Aerobus tickets can be purchased on board. One way Aerobus ticket from/ to Airport (also valid on all buses in the urban area up to 75 minutes) costs € 6.00.

Otherwise you can take the express train from Airport to Bologna Central Station. It will take 7 minutes.

BY TRAIN
Bologna Central Station
For the strategic geographic location - between downtown and the north - Bologna is the main Italian railway junction, made even more efficient by the High-speed trains, which, together with the new railway station project, has lead to greater development and a significant increase of daily transit of trains and passengers.

TOURIST INFORMATION, HOTEL AND TRAVEL
On-line booking system is available on the congress website. Travel information are available on the congress website.

For any information you can contact:
Bologna Welcome
+ 39 051 65 83 150/147
agenzia@bolognawelcome.it www.bolognawelcome.com/en/

MOBILE PHONES
All participants are asked to switch mobile phones off or to silent mode during the scientific sessions.

ELECTRICITY
In Italy the electrical current is 220 volts AC (50 Hz). Electrical sockets comply with European regulations. In most hotels you will find adaptors for different types of plugs.
CURRENCY
What currency is used in Italy?
Since 2001, the currency used in Italy is the euro. One euro is divided up into 100 euro-cents. There are eight different coins (1, 2, 5, 10, 20 and 50 euro-cents) and seven notes (5, 10, 20, 50, 100, 200 and 500 euros).

CREDIT CARDS
As well as in cash, purchases can be paid for using the most common credit cards. This payment system is common in Italian shops, which generally display the symbols of the credit cards they accept on the outside door. If you pay by credit card you will be asked to show an identity document. Travellers cheques (in USD or Euros) can also be cashed in Italian banks.

TIPS
Tips are not compulsory and in Italy there are no generally established rules, although it is common practice to leave a sum amounting to around 10% of the bill if you are satisfied with the service you have received.

BOLOGNA: DISCOVER THE CITY
Bologna with over 400,000 inhabitants, is the capital city of Emilia Romagna, one of the wealthiest and most industrial regions in Italy, whose per capita income and employment rate are way higher than the national average.

Bologna is known in Italy as “La Dotta, La Rossa, La Grassa”, which translates as “the Educated, the Red, the Fat”.

“Educated” is for the city’s University, the oldest in Europe and home to such intellectual greats as the novelist Umberto Eco.

“Red” refers both to the red bricks that most of Bologna’s historic buildings and porticoes are made from, and to the city’s history of leftist politics.

“Fat”, of course, is for Bologna’s culinary history, based on creamy pasta sauces and rich meat dishes.

Bologna is located in a strategic position: being just in the heart of Italy, Bologna is at crossroads in Italy and Europe as well as a transport hub and natural crossroads for international business and trade.

As artistic city Bologna has over 50 museums, including the MAMbo Museum, a reference point for contemporary art.
The Churches and noble Palaces contribute to make of Bologna an open air museum.

Thanks to its culinary traditions Bologna has become the capital city of taste and quality food. The food of Bologna is principally based upon egg handmade pasta, such as tagliatelle, tortellini, or the famous mortadella.

Bologna is an easy city to visit, and many visitors find it one of Italy’s most appealing one.

THE WEATHER IN JUNE
Bologna has a warm humid temperate climate with hot summers and no dry season. The month of June is characterized by gradually rising daily high temperatures. The average temperature in Bologna in June is 28 to 35 degree Celsius. Rain is rare in this period.

SOCIAL EVENTS
JAZZ & FOOD EVENT, 28TH JUNE 2021 AT CANTINA BENTIVOGLIO
Time: 20.00
Address: Via Mascarella 4/b, 40126, Bologna
Price: € 70,00 VAT included

Cantina Bentivoglio is located in Bologna’s historical city center since 1987. From more than 30 years, 6 nights a week, 270 events in our music lounge and 60 in our outdoor summer stages.

Cantina Bentivoglio is featured since 2002 on the american magazine “DownBeat”, proudly standing in the top 100 most important world jazz club ranking.

Alberto Armaroli and Giovanni Serrazanetti, artistic directors, take care of every live performance, scheduling not only jazz concerts but also swing, manouche, blues and funky ones.

During the years Cantina Bentivoglio has hosted various important international festivals such as: Heineken Music Club, Alhambra Jazz Club, Alfa Soul Tour and all the Bologna Jazz Festival editions.

CONGRESS DINNER, 30TH JUNE 2021 AT ROYAL HOTEL CARLTON
Time: 20.00
Address: Via Montebello, 8 - 40121, Bologna
Price: € 100,00 VAT included

Royal Hotel Carlton is located next to the pedestrian area in the heart of Bologna, and it belongs to the highest class among Bologna’s hotels. It can be defined as a City Resort, with leisure-oriented offerings, bringing together both the needs of businessmen and a laid-back environment, in perfect harmony.

Built in the seventies on the ruins of the old “Il Resto del Carlino” building by architect Enzo Zacchiroli, the prestigious architectural works of which, such as the John Hopkins University and the Malpighi Hospital, enrich the city of Bologna
See you in Bologna!