



# WATER BUFFALO NEWSLETTER

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THE AMERICAN WATER BUFFALO ASSOCIATION

## 10TH WORLD BUFFALO CONGRESS Phuket, Thailand

The 10th World Buffalo Congress was held May 6-8, 2013 in Phuket, Thailand. The event brought together experts from around the world to exchange the most up-to-date information, knowledge, and research related to water buffaloes. More than 350 delegates from over 35 countries attended the conference. The 7th Asian Buffalo Congress, sponsored by the Asian Buffalo Association, was held in conjunction with the World Buffalo Congress in Phuket as well.

The theme of the 10th Congress was green production against global warming. The Governor of Phuket Province, Mr. Maitri Inthusut, presented an inaugural address expressing his wish that water buffalo populations can be revitalized in Thailand and throughout southern Asia.

The scope of information shared at this event was exhaustive. Keynote

speeches, lectures, symposiums, and forums covered a comprehensive array of topics. More than 200 academic papers were prepared for the congress by researchers and practitioners throughout the field. Workshops and field trips before and after the congress provided participants with state-of-the-art instruction related to reproduction biotechnology and buffalo management operations.

### Proceedings

A complete set of proceedings from the 10th World Buffalo Congress was made available to delegates both in printed and electronic CD-ROM format. Selected reports and speeches from the congress will be highlighted in forthcoming issues of the Water Buffalo Newsletter. Articles will present information from topics discussed at the conference in the following areas:

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## GENETIC RESEARCH

Genetic improvement is one of the most frequent topics discussed in agriculture. It consists of identifying favorable traits and then breeding in a way so offspring express traits that are most desired.

Genetic improvement has a long history. Selective breeding of farm animals has been practiced since before the time of Rome. In water buffaloes, improving milk yields, meat production, disease resistance, and general health characteristics have been researched for decades. Over time, technologies for implementing genetic improvement have advanced at a rapid pace.

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#### History of the Congress

The 1st World Buffalo Congress was held in Cairo, Egypt in 1985. The congress

has been held every three years since that time in a different international location on a rotating basis. Each World Buffalo Congress is organized under the auspices of the International Buffalo Federation, a non-profit international organization headquartered in Monterotondo, Rome, Italy. A large number of co-sponsors and local organizing committee members also contribute many months of hard work to present the congress each year.

The purposes of the International Buffalo Federation and World Buffalo Congresses are to promote the exchange and dissemination of scientific and technical knowledge related to the breeding, health, and welfare of water buffaloes, and to strengthen cooperation between interested individuals and water buffalo organizations worldwide.

Looking ahead, the next World Buffalo Congress is scheduled to be held in the Republic of Columbia in three years time.

## ACUPUNCTURE THERAPY FOR BUFFALOS

In the authoritative book "The Water Buffalo" (FAO, 1977) researcher W. Ross Cockrill described the use of acupuncture anesthesia for surgery involving large animals in China. He noted acupuncture was particularly useful in the castration of water buffalo bulls, and success rates of nearly 90% were reported by practitioners.

Acupuncture is the ancient form of Chinese medicine involving the insertion of needles into the skin at specific points on the body to achieve a therapeutic benefit. When certain acupuncture points are stimulated, natural pain-relieving chemicals called endorphins and enkephalins are released onto the central nervous system

producing an anesthetic effect.

A more recent study involving buffaloes was reported by Dr. Jezie Acorda from the school of veterinary medicine at the University of the Philippines in Los Baños, Laguna, Philippines. Dr. Acorda and his colleagues used electro-acupuncture to successfully produce analgesia during routine surgical procedures. They also found buffaloes recovered more quickly following surgery than animals treated with conventional anesthesia methods. Their research paper, "Application of Acupuncture Analgesia and Therapy in Water Buffaloes", was sponsored by the Food and Fertilizer Technology Center for the Asian and

Pacific Region and can be found on the organization's web site [www.agnet.org](http://www.agnet.org) (registration required).

Veterinary acupuncture for large animals can be applied to treat many types of disorders including fertility issues, lethargy, lameness, and digestive problems. The International Veterinary Acupuncture Society is a non-profit organization that promotes the practice by setting standards and training practitioners through educational and accreditation programs. Research continues to show that acupuncture has great potential for use in surgical procedures and treatment of reproductive disorders in water buffaloes.

## MEAT Update #1

Several studies have been published recently concerning the production of water buffalo meat products in Brazil. The studies were made in collaboration between various public and private research organizations including the Federal University of Para State and Embrapa Eastern Amazon, a private research organization also located in Para State, Brazil. An objective of these projects is to add value to and develop new markets for secondary cuts of buffalo meat.

1. "Microbiological And Sensorial Evaluations Of Cured Sausage Elaborated With Secondary Cut Of "Baby Buffalo"". This study analyzed the use of secondary cuts of meat for the production of cured sausage. The study showed that cured sausages are safe for consumption, and that the flavor and taste of cured sausages received good acceptance.

2. "Microbiological And Sensorial Characteristics Of 'Babyburger' Elaborated With

Secondary Cut Of Baby Buffalo." In this study, secondary cuts of buffalo meat were used to produce a value-added hamburger product. The study showed this product to be of excellent quality for consumption with a flavor rated highly by independent tasters.

3. "Microbiological And Sensorial Characteristics Of Mortadella Elaborated With "Baby Buffalo" Meat And Fine Herbs." In this project an experiment was undertaken to produce Brazilian Mortadella using secondary cuts of buffalo meat. Mortadella is a large sausage or cold cut made from finely hashed meats flavored with different spices. The work showed mortadella made with buffalo generates excellent curing conditions, and receives acceptance ratings of 91% favorable by test consumers.

### More Information

Members may read these research papers in full by

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## MEAT Update #2

In 2002, representatives from the Buffaloes Research Group, the University of Antioquia, Colombia, and the Colombian Buffalo Breeders Association undertook a study to investigate the quality of Colombian bufaline carcasses compared to other bovines including domestic cattle, Zebu types, and Zebu-cattle crossbreds.

Their results were published in a technical paper "Comparative Analysis Of The Quality Of Cattle And Bufaline Carcass Marketed In The City Of Medellín - Colombia". The study showed that buffaloes produce comparable amounts of meat, at earlier ages, than other bovine varieties. The study indicated meat production from buffaloes can be more profitable as well.

This complete research paper can be accessed via the membership-only area at the American Water Buffalo association website: [www.americanwaterbuffaloassociation.com](http://www.americanwaterbuffaloassociation.com).

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## Genetic Research (continued)

For example, artificial insemination and embryo transfer are employed today as tools to support selective breeding practices.

Now the next major advancement in genetic biotechnology has been developed. Initial results related to the mapping and sequencing the water buffalo genome are available, and analyses of the buffalo genome for research and selection are now underway.

### Research Update

John Williams presented an update concerning recent advances in genome science at the 10th World Buffalo Congress held in Phuket, Thailand earlier this year.

Williams and his organization, Parco Tecnologico Padano, are part of an international consortium working to map, sequence, and analyze the genome of the water buffalo. His talk focused on how the creation of a draft panel of DNA markers provides new opportunities to apply molecular selection approaches for the species.

Specifically he explained efforts to detect genomic variations among the buffalo, and the development of a genotyping SNP panel to support research and genetic selection.

Three phases of work were described. Phase 1: Complete sequencing of a domesticated Mediterranean Buffalo. Phase 2: Application of SNP (Single Nucleotide Polymorphism) technology, a diagnostic tool that identifies where a differentiation in DNA occurs, to detect genomic variations. Phase 3: Sequencing of wild buffalo relatives, to characterize biodiversity aspects and assist conservation of endangered species.

The development of genomic information for water buffaloes will facilitate the selection of animals optimized to live, and be productive, in particular environments. Improvement in buffalo production will have a positive impact on agriculture in many regions of the world.

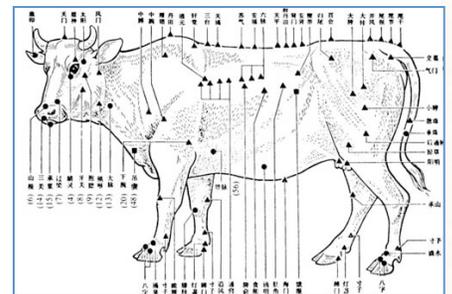
### More Information

Additional information concerning the international

buffalo genome project is available at the following reference link [www.animalgenome.org/ruminants](http://www.animalgenome.org/ruminants) under the category Project Details and the sub-category Species Specific .Projects.

## Meat Update #1 (continued)

accessing the Research and development section of the the American Water Buffalo Association website at [www.americanwaterbuffaloassociation.com](http://www.americanwaterbuffaloassociation.com).



Modern Chinese veterinary acupuncture chart for cattle. From "Veterinary Acupuncture", by Alan M. Klide, VMD & Shiu H. Kung, Ph.D., Univ. of Penn. Press, 1977. Cattle are quite different than buffaloes in many respects, but they share some of the same acupuncture points on the body.

## Recipees From Our Readers WATER BUFFALO PICADILLO

Picadillo is a traditional dish in Latin American normally served with rice or mashed potatoes. It is also used as a filling in tacos and meat pastries. This recipe, reprinted from a previous edition of Water Buffalo Newsletter, was provided by association member Betty Haeseker.

- 2 medium onions
- 2 green or red bell peppers
- Olive oil
- 2-3 garlic cloves
- 2 lbs. ground water buffalo meat
- 1 large can tomatoes, peeled
- Salt and pepper
- 1 tbsp. brown sugar
- 1/4 cup vinegar
- 1/4 cup green olives, chopped
- 1 small can black olives, chopped
- 1/2 cup raisins
- 2 tbsp pickled capers
- 1/2 cup liquid (red wine or tomato juice or beef bullion)

Chop onions and peppers and sauté in olive oil until soft. Add chopped garlic and sauté for 1 minute. Add ground buffalo and brown until no longer pink. Add tomatoes, salt and pepper to taste, and cook 1-2 minutes until thoroughly integrated. Add brown sugar, vinegar, olives, raisins, capers and liquid. Cover and simmer for about one hour, until tomatoes are soft and blended. Serve with rice, mashed potatoes, or toasted buns. Serves 8-10 people.

## RECOMMENDED READING Books & References

The Husbandry and Health of the Domestic Buffalo. W. Ross Cockrill, editor. FAO Food and Agriculture Organization of the United Nations, Rome. 1974. ISBN 0-11-940540-7

The Water Buffalo. FAO Food and Agriculture Organization of the United Nations, Rome. 1977. ISBN 92-5-100108-1

The Water Buffalo: New Prospects For An Underutilized Animal. Report from the National Research Council. Published by the National Academy Press, Washington, D.C. 1981. Download available at [www.dalnet.lib.mi.us](http://www.dalnet.lib.mi.us)

Buffalo Production and Research. Antonio Borghese, editor. FAO Food and Agriculture Organization of the United Nations, Rome. 2007. Download available at [www.fao.org](http://www.fao.org)

The Visual Guide to Bubaline Reproduction. The Drost Project. Copyright 2000-2010. Available for viewing online at [www.drostproject.org](http://www.drostproject.org)

### WATER BUFFALO NEWSLETTER

Published by the **American Water Buffalo Association**, 2415 N. Mosley Rd., Texarkana, AR 71854. The American Water Buffalo Association, est. 1986, promotes the scientific study of raising, breeding and marketing water buffalo. The association also serves to bring a focus on the potential of the animal in the United States, and to bring together those who are interested in the growth and development of the breed.

[www.americanwaterbuffaloassociation.com](http://www.americanwaterbuffaloassociation.com)