

TECHNOLOGY TRANSFER TO GOAT PRODUCERS IN BRAZIL –
CAPRITEC EXPERIENCE

[TRANSFERENCIA DE TECNOLOGÍA DE PRODUCTORES CAPRINOS EN
BRAZIL – LA EXPERIENCIA CAPRITEC]

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SUMMARY

Capritec is a company devoted to dissemination of technology in the form of courses, consulting, lectures and events for producers, students and technicians involved with goat production. Capritec headquarters are located in Espírito Santo do Pinhal, in the state of São Paulo, in Southeastern Brazil. In the state of São Paulo, dairy goat production is well developed. Meat goat production is more modest, but has increased steadily in recent years. The main objective of Capritec is to transfer technology a) to enable interested producers, students, technicians and entrepreneurs to invest in goat production, b) to give them the necessary tools to avoid business failures in these enterprises and c) to contribute to the development of Brazil goat production. The company's owners and collaborators have extensive experience with goats in the areas of animal production, reproduction and food processing. Between 2003 and 2006, 58 extension courses were offered, attended by 422 participants. The courses themes were goat production for beginners (4 courses), meat goat production (9 courses), dairy goat production (5 courses), goat milk processing into cheese (12 courses), yoghurt, ice cream and sweets from goat milk (1 course), cosmetics from goat milk (2 courses), artificial insemination (7 courses), ultrasonography (2 courses), semen quality examination and fresh semen processing (2 courses), general handling practices (7 courses), preparation and economical evaluation of projects (6 courses), and goat health (2 courses). Courses emphasize practical hands-on activities and are taught in small groups. Women were in the minority, accounting for 23.51% of course participants, whereas men accounted for 71.49%. Between 2003 and 2006, 4 extension workshops were organized, attended by 826 participants. After each event, the participants were invited to answer a questionnaire, to mention the strengths and weaknesses of the course, and to score and give suggestions for future courses. The ratings

and suggestions were evaluated at meetings with the instructors to improve the quality of the courses. The ratings, on a scale from 0 to 10, were above 9, on average, indicating the high level of satisfaction of the participants.

Key words: *Courses, Goat production, Producers, Technicians*

INTRODUCTION

Goat production is an old activity around the world, including Brazil. Social potential of goat production is very important too, but without technology this production is smaller than that were appropriate technology is used.

Brazil has more than 10 million goats, most of them in the Northeastern region, representing around 90% of total goats (IBGE, 2005).

The Southeastern region has a smaller herd but most of them in a more intensive goat production system, generally utilizing more technology and more specialized animals (meat and milk) (Ribeiro, 1997).

According to Braund (1995), on farms, in classrooms, laboratories and field research stations of land-grant universities, producers face a resistance to science and technology. It is true for many areas in Brazil, but in goat production there are producers avid for knowledge. It can be perceived from small producers, who have just some goats for their subsistence, to enterprisers with thousands of goats. What makes a difference is how they can get knowledge and how deep it must be.

There is a category of goat producers who have other activities, so goat production is responsible for up to 25% of their revenues in 80% of cases (Ribeiro, 1999). The majority of goat producers that come to Capritec are graduated, but mostly not in the area of animal

science and they want to run their goat production as an enterprise.

New approaches are necessary for implementing innovative technology. According to Morrissey and Almonacid (2005) universities and research centers are often ill equipped to meet these changing needs due to traditional methods of undertaking research and technology transfer. These methods are often slow and time consuming while these enterprises need real-time responses to technological challenges and market demands.

This lack between technology generation and producers necessities can be filled by universities in extension programs, state enterprises, non-governmental organizations, breeders associations and private companies. Capritec is a private company devoted to the dissemination of technology in the form of courses, advisory, lectures and events for producers, students and technicians involved with goat production.

The main differential of Capritec is their mission: It teaches people how to use academic knowledge in the practices. The company's owners and collaborators have extensive academic and practical experience with goat production, reproduction and food processing.

The main objective of Capritec is to transfer technology:

- a) to enable interested producers, students, technicians and entrepreneurs to invest in goat production;
- b) to give them the necessary tools to avoid business failures in these enterprises, and
- c) to contribute to the development of Brazilian goat production.

Thus, the aim of this paper is to report how this company worked with goat producers between 2003 and 2006, in extension courses, workshops and lectures, and their results.

MATERIAL AND METHODS

Data were obtained from Capritec, a Brazilian private company, between 2003 and 2006, analyzing the producers, future producers, technicians and students profile who search knowledge in goat production.

Capritec headquarters are located in Espírito Santo do Pinhal, in the state of São Paulo, in the Southeastern region of Brazil.

Dissemination of technology was done in the form of courses, advisory, lectures and events.

Many farmers still use primitive technologies while there is scientific innovation offering attractive new and simple possibilities.

Easy access to information, for some producers, does not work very well by their lack of capacity to test and adapt technologies themselves.

According to Eponou (1993) there are some important tasks which are sometimes forgotten in technological systems, such as:

- Diagnose farmers' problems;
- Design a research program;
- Generate technologies;
- Consolidate technologies;
- Disseminate information and knowledge;
- Approve and release technologies;
- Multiply improved genetic material and duplicate technology packages (reproduction);
- Deliver technologies;
- Evaluate technologies.

Capritec achieved its objective by applying these tasks. Each participant filled out a complete form giving personal information and relationship with goat activity. To evaluate satisfaction level in courses, lectures and workshops a questionnaire was given to each participant. The questionnaire asked about 3 strong points, 3 weak points, evaluation of course and instructor, suggestions about new issues for next events and suggestions in general. SAS/STAT computer program (1996) was used to analyze the results.

RESULTS AND DISCUSSION

Capritec tried to achieve its objective, that is transfer appropriate technology to each situation or production system. As Capritec owners are also goat producers, and are in touch with other breeders they know the difficulties and problems faced by them. Capritec owners are researchers at Unipinhal and Unifeob universities and made some researches in order to find simple solutions to those problems. At these universities they had many under graduate students working with testing approaches and technologies, besides equipment. On Capritec goat farm these solutions, new technologies and equipment were tested and if they were considered good tools, information and knowledge were disseminated in courses, lectures and workshops, along with technologies generated in other Brazilian or international organisms.

Based on this work many extension and scientific articles were published, as well as bulletins, book chapters and books. If information is to be applied, it must also be presented in an easy-to-follow format and

written in appropriate language. Some publications are too technical to be used by some producers who have low level of formal scientific education.

Radio and television programs are generally popular and benefit many producers. Through interviews and “how-to-do” formats, the Capritec team spread this knowledge to producers.

Internationally, some conferences and collaborative courses were held in countries like Cuba, Guatemala and Mexico.

Only experts in goat production worked as instructors in courses, lectures and workshops.

These courses emphasized practical hands-on activities and were taught in small groups. Each course took 12 hours (two days). The courses themes and programs were:

Goat production for beginners – Brazilian situation and perspectives of goat production for beginners; breeds and crossbreeding; animal choosing; nutrition; foods and feeding; pastures; buildings; reproduction; health; management; economical viability.

Meat goat production – The same of Goat production for beginners program, emphasizing meat goat production necessities.

Dairy goat production – The same of Goat production for beginners program, emphasizing dairy goat production necessities.

Goat milk processing into cheese – Brazilian situation and perspectives of goat cheese; goat milk production; milking and hygiene; pasteurization; fast coagulation cheese (Natural fresh cheese and Spiced fresh cheese); slow coagulation cheeses (Boursin, Chevre a L’Huile); others goat milk products; economical viability.

Goat milk processing into yoghurt, ice cream and sweets from goat milk – Brazilian situation and perspectives of goat milk products; goat milk production; milking and hygiene; pasteurization; natural yoghurt and fruits in yoghurt; homemade ice cream; sweets from goat milk; Good Manufacturing Practices (GMP); marketing; economical viability.

Goat milk processing into cosmetics – Chemical composition of goat milk; historical cosmetical use of goat milk; kind of cosmetics; main raw material; materials and equipments; creams, shampoos, hair conditioners, soap, liquid soap, after shave; GMP; marketing; economical viability.

Artificial insemination (AI) – Advantages and disadvantages of AI in goats; necessities for implementing AI; goat anatomy; buck anatomy; estrous cycle; heat detection; heat induction and synchronization; nitrogen bottle management; semen management; insemination techniques.

Ultrasonography (US) – Biophysical aspects related to US; equipment and its application; gestational diagnosis; fetal viability analysis; other uses of US. This course is just for veterinarians or veterinary students.

Semen quality examination and fresh semen processing – Buck anatomy; reproductive physiology; general clinical exam; reproductive apparatus exam; libidos; Sperm exam; semen dilution. This course is just for veterinarians or veterinary students.

General handling practices – Importance of good handling practices; nutritional handling: food preparing; body condition score; sanitary handling: medicine application; general handling; milking handling; animal performance control; breeding information; milk production practices.

Preparation and economical evaluation of projects– Production of meat and dairy goat; market perspectives; basic economical concepts; profitability indicators and their interpretation; projects elaboration; projects management; production planning; investment planning; financial sources; commercialization and marketing.

Goat health – Goat health; viral diseases; bacterial diseases; parasitizing diseases; nutritional and metabolical disorders; preventing diseases; preventing calendar; vaccination.

Between 2003 and 2006, 58 courses were offered at Capritec headquarters with 422 participants (Figure 1).

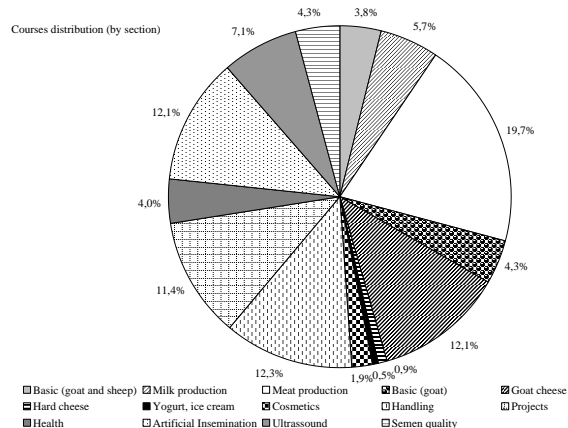


Figure 1 – Capritec courses distribution by issues.

Brazil is a big country with 26 states divided in 5 regions. Capritec receives people interested in learning about goat production from all 5 regions and almost all states. Sometimes people travel more than 3,000 km in order to participate in courses or workshops.

Women were in the minority, accounting for 23.51% of course participants, whereas men accounted for 71.49%.

Evaluation of teaching is very important, and Capritec made it using evaluation questionnaires after each activity. The participants were invited to answer a questionnaire, to mention the strength and weakness of the course, and to score and give suggestions for future courses. The ratings and suggestions were evaluated at meetings with the instructors to improve the quality of the courses. The ratings, on a scale from 0 to 10, were above 9, on average, indicating the high level of satisfaction of the participants.

Another form of checking people's satisfaction was the new application for other courses. Some people took 5 different courses in Capritec headquarters.

Capritec advertising is based mainly on their internet site (www.capritec.com.br), so it works more for people who have internet access. Other efforts to spread their work is personal contacts, as well as sponsoring some academic events, animal shows participation and folders distributed in academic and technical events.

Interested people get in contact by e-mail or telephone, when doubts are solved, and personal information is requested. Courses are charged, including participation certificate, "goat milk products and coffee breaks", a file with written material, notepad and pen.

Visiting needs to be booked so that an experienced guide can be provided to explain everything about Capritec farm goat production system, from food distribution to milk refrigeration. Visiting is not charged.

People who book visits belong to high school, technical, graduation and post graduation groups; future breeders, old breeders, colleagues (professional), goat milk product consumers and tourists.

Capritec team does lectures in other states in Brazil even in other countries, especially in Latin America.

Between 2003 and 2006, 4 extension workshops were organized, attended by 826 participants.

CONCLUSIONS

The aims have been achieved what can be checked by the number of participants in courses, high ratings and the distance these participants travel in order to attend the courses from all Brazilian regions.

Brazilian goat production is important nowadays but has a increased fast in the last decade. According to a great number of requests for meat goat courses between 2003 and 2006 even in 2007, in the next decade, dairy goat production will be established and meat goat production will increase substantially.

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