

**ABSTRACTS OF THE ALTERNATIVE AND SUSTAINABLE
PRODUCTION SYSTEM SECTION PRESENTED DURING THE
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**SMALL CUNICULTURE FAMILY FARM
ON THE SOUTH COAST OF GUERRERO
STATE, MEXICO**

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A survey was carried out in order to study the Small Cuniculture Family Sector in three municipalities of the south coast of Guerrero State, Mexico. Frequent observations were also done to keep a record

of the animals, the type of facilities, food, management, health, reproduction, diseases and the marketing of the product. A two step cluster sampling design and an estimated sample of 27 production units were used. Most of the food used (84.6%) in the production units consists mainly of commercial type complemented with agriculture residues, food waste and a small fraction of producers use green food only. 61.5% of this activity is for self consumption, 15.4% is commercial and the remaining is used for both activities. The management is rustic, and the different breeds are the White New Zealand, California, Chinchilla and indefinite crosses; 30.8% of the producers grow the rabbits on earth, 46.1% use cages, and 23.1% both. The animals are mainly kept in the backyards (92.3%) and the rest of them are put on the roofs of houses (7.7%). Fifty for percent of the producers separate the rabbits from their mothers when they turn 33 days old, and only 30.8% keep records of breeding, births and food and the use of nests is common. The main diseases in 61.5% production units

are acariosis, breathing diseases and diarrhea. The productive and reproductive indicators showed an average litter size of 6 rabbits, the mortality rate is 17% and the sale is directly done to the consumer.

Key words: sustainable, backyard, cuniculture, family farm, diagnostic.

REPRODUCTIVE RABBIT PARAMETERS OF BACKYARD PRODUCTION IN THE URBAN AND PERI-URBAN SPACES IN XOCHIMILCO REGION

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In intensive systems, where the technology and requirements are updated, a high efficiency of reproductive parameters close to those cited in the literature is important. However this is not possible for traditional farmers where the rabbit production is part of the life opportunities that made their existence feasible. Usually the rabbit backyard production in most cases is for home consumption and, in some cases, the animals are traded at the local market or among farmers. Nevertheless, there are some rabbit producers that are intensifying the meat production focusing in supplying big markets such as the Valley of Mexico as well as the touristy corridor of the region. The present work analyses and characterizes the reproductive and technological system production rabbit backyard in the Xochimilco region. Thirty questionnaires

that included social, technological and economic features were applied. The questionnaires included 62 questions, 11 were open and 51 were closed. The total rabbit population were 1050 animals that included breeds like Californian, Hybrids, Rex, Satin, Belier and Dwarf. The production is directed to meat (77.8%) and tan skin (22.2%) production.

Key words: reproductive, rabbit urban production systems.

EVALUATION OF PRODUCTIVE INDICATORS IN HALF-BREED RABBITS FED WITH LOCAL PRODUCTS IN CUBA

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An experiment was carried out at the Experimental Station of Pastures and Forages Indio Hatuey”, with the objective of studying the productive performance of half-breed rabbits with a feeding system based on the use of local products. A total of 30 clinically healthy does with a weight higher than 3.4 kg were used. Feeding was composed by mulberry (*Morus alba*) forage *ad libitum*, sugarcane, sweet potato (*Ipomea batata*) creeping stems and domestic feed. From the individual records of the does, the following indicators were determined: average of born-alive offspring per parturition, weaned offspring per parturition, mortality per stages during lactation, average weight at birth, 20 days after being born and at weaning (45 days), average daily gain (adg) per stages and during the whole lactation. The average of young rabbits born alive per parturition was 7, while the average of weaned young

rabbits was 5.2 with a weight of 784 g/animal. Average daily gain during lactation was 18 g. Mortality rate was 25.7 %, most of which took place during the first lactation stage (0-20 days) with 20.7 %. The results show that with the use of local resources of moderate nutritional quality, satisfactory productive results are obtained in half-breed rabbits.

Key words: productive indicators, half-breed rabbits, local products.

SLURRY EVALUATION FOR THE
PRODUCTION OF HYDROPONIC
FODDER FOR RABBITS *Oryctolagus
Cuniculus* AND VERMICOMPOST AS
SUBSTRATUM FOR *Ficus*
INOCULATED WITH ARBUSCULAR
MYCORRHIZAE *Glomus*

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The hydroponic fodder is of great nutritious quality and it is easy to produce. The dung drain slurry can be used in its production as well as for producing compost, which is a substrate for plants which, inoculated with beneficent fungi or arbuscular mycorrhizae *Glomus*, decrease the costs of chemical fertilizers because these fungi improve the absorption of minerals. The aim of this research was to evaluate slurry to produce hydroponic fodder (FH) from wheat *Triticum aestivum* L., the hydroponic fodder as a diet for male rabbits and vermicompost as a substrate to grow *Ficus* inoculated with arbuscular

mycorrhizae (AM) *Glomus*. Different mixtures of nutrient solution-slurry were evaluated (S-NS) to produce hydroponic fodder. The best mixture was used for the production of FH to the sustenance of rabbits *Oryctolagus cuniculus*. The residues were vermicomposted with earthworms *Eisenia foetida*. The vermicompost was used as substratum for sowing and inoculation with AM of rooted plants of *Ficus*. The results indicate the possibility to produce rabbits in a sustainable way, with the saving of chemical fertilizer by the use of slurry and vermicompost as substrate of *Ficus* produced in nurseries and inoculated with AM.

Key words: slurry, hydroponic fodder, rabbits, arbuscular mycorrhizae.

BACKYARD RABBIT PRODUCTION AS A
SUSTAINABILITY SYSTEM IN THE
URBAN AND PERI-URBAN AREA OF
XOCHIMILCO REGION

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Mexico City has a long history of agriculture and, in spite of constant industrial growth, agricultural activities persist within its boundaries. Complex agricultural systems have their roots in the pre-Hispanic period, since then they have been modified and adapted with the introduction of metal tools, domestic animals and plants during the Spanish colony. The rabbit breeding activity at the urban y peri-urban area at southeast of Mexico City is an

important part of the folder opportunities that local people have over their folder life opportunities. During the last decades the backyard rabbit production has been a neglected agricultural activity for the governmental plans, in spite of their meat production potential, sub-products utilisation and family integration. The rabbit occupation is characterised by low technological development, lack of technical advice and low breed and genetic quality. The results showed that the main concern of most of the rabbit breeders are: technical advice (including meat and processed sub products), broadcast and financial help to improve their production. The lack of a deep understanding of the whole system put its continuity at risk.

Key words: backyard, sustainability, urban agriculture.

THE RABBIT PRODUCTION IN THE VOLCANOES RURAL AREA OF ECATZINGO VILLAGE, MÉXICO STATE

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The backyard rabbit production in the central part of Mexico is characterised as an important part of the folder opportunities of

the local people. Institutions and governmental agencies know their existence but they know few about the structure and requirements. The results of the field work analyze and distinguish the main features of the social, technological and commercialization backyard rabbit producers in the Ecatzingo village. The importance of the physical localization is because it is an important part of the touristy corridor of the Pocatepetl and Iztaccihuatl volcanoes.

Key words: rabbit, volcanoes area, backyard.

A GROUP-HOUSING SYSTEM FOR RABBIT DOES IN COMMERCIAL PRODUCTION: A NEW APPROACH

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An overview is given of experimental work done in The Netherlands on the (further) development of a group-housing system for breeding does. In The Netherlands, high priority is given to replace the regular individual housing by more welfare -friendly and sustainable housing systems. An individual electronic nestbox recognition (IENR) system was developed, as the basic component of a group -housing system. For the IENR technique a chip is attached to an ear of a doe. With this chip a doe is able to open a door giving access to her nesting box only. The technique was first tested with pair-housed does. Two designs of an IENR system, and two prototypes of a grouphousing system for breeding does, are described. Currently, a second design of the IENR system, and a second prototype of a

group -housing system are being investigated on three commercial farms.

Key words: group-housing, breeding does, sustainability, IENR technique.

EVALUATION OF AN ORGANIC DIET FOR GROWING RABBITS (*Oryctolagus cuniculus*) BASED ON ALFALFA (*Medicago sativa*) AND CORN (*Zea mays*)

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In order to evaluate the performance and profitability of growing rabbits fed with organic feedstuff a trial was conducted at the Zootecnia Department Rabbitry, Universidad Autónoma Chapingo, Mexico, from August to September, 2003. A commercial rabbit formula including the prebiotic Bio-Mos was treatment 1 (T1). Organic fresh alfalfa and dry corn, added with the prebiotic Bio-Mos and common salt constituted treatment 2 (T2). A total of 60 weaned rabbits were used (30 by treatment), 6 young with similar weight were allocated in each cage, having 5 cages by treatment. Offered and rejected feed, to calculate feed consumption; weekly rabbits weight to calculate average daily gain; and mortality rate were recorded until animals reach 2kg live weight. Records were analyzed by SAS (Proc GLM and Proc FREQ). There were significant differences ($P < 0.05$) for gain

(30.24 and 20.02 g for T1 and T2 respectively) between treatments. There were not differences ($P > 0.05$) in feed consumption (95.74 and 72.92 g for T1 and T2 respectively), and mortality rate (13.42 and 21.12 % for T1 and T2 respectively). In order to estimate the treatments profitability for the growing period, the previous technical parameters and the following prices were utilized. Fresh organic alfalfa \$0.46, organic corn \$2.16, rabbit commercial feeding \$2.98, Bio-Mos \$65.00, weaning rabbits \$20.50 (by kg, live weight), conventional finished rabbits \$41.00, organic finished rabbits \$45.00 (by kg, carcass weight). It was assumed that organic products had a prime of 10% over conventional products price and that feeding represents 80% of the total production costs. T2 profit was superior 17.61% in relation with T1. As expected, growing period to reach 2kg live weight was longer for rabbits feed with organic diet than conventional diet (42 vs. 65 d for T1 and T2 respectively), because of the lower gains this diet generated in comparison with commercial formula feeding. However organic production resulted more profitable because of both the prime prices this kind of products have and the technical parameters that can be obtained with the organic diet. The advantage of organic rabbit can be possible as long as the market for organic products keeps growing. To find out other organic ingredients to improve the organic diet formula and improve the technical parameters, and ways to reduce the feed waste is recommended.

Key words: rabbit, growing, corn, alfalfa, organic.

CHARACTERIZATION OF A PET
RABBIT'S HERD IN MEXICO CITY

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Two main characteristics were analyzed on a rabbit herd: weight and ear length. The pet rabbit herd measured consisted of 150 adult rabbits of a selection Rabbitry, including the following 10 breeds in

proportion: Netherland Dwarf (34), Dwarf Hotot (5), Dutch (12), Jersey Wooly (12), Mini-Rex (17), Holland-lop (10), Mini-lop (29), Rex (17), Satin (10) and Creoles (4). The main results conclude that there were no significant statistic differences between the weight and ear length of bucks and does of the 10 breeds, with the following averages and standard deviation for each breed; weight (kg): ND 1.50 ± 0.35 , DH 1.62 ± 0.54 , D 1.84 ± 0.16 , JW 1.71 ± 0.42 , MR 1.89 ± 0.21 , HL 1.92 ± 0.32 , ML 2.62 ± 0.35 , R 2.98 ± 0.70 , S 3.89 ± 0.40 and C 2.82 ± 0.61 ; ear length (cm): ND 6.46 ± 1.0 , DH 6.50 ± 1.32 , D 7.69 ± 0.35 , JW 7.6 ± 0.63 , MR 7.62 ± 0.58 , HL 10.61 ± 0.69 , ML 11.28 ± 0.58 , R 10.52 ± 0.92 , S 11.33 ± 0.65 and C 9.73 ± 1.60 , respectively. All the does were not pregnant and at least 6 months old by the time of measure.

Key words: pet rabbit, selection, weight, breeds, dwarf.