

## 2. Forms of Urban Agriculture

### 2.1 Urban Livestock



Livestock in the city.

(Picture: Henk de Zeeuw)

## Urban farming and animal production, a synthesis

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### Introduction

Animal production is and has been part of urban agriculture in many growing cities. It occurs in a multitude of forms, each with its own problems and opportunities. Any attempt to summarise the information from the literature and personal experience implies a categorisation. We choose, therefore, to divide the literature on urban livestock into five major categories. Each of the five categories of reports has a distinct approach in terms of level and scope of analysis, and they are discussed here more or less in order of increasing level of aggregation, i.e., from animal and family level to the level of the city or of urban agriculture in general.

The first category focuses on case studies and anecdotal stories of how a particular family or small community is happy with their rabbits, backyard chickens, guinea pigs, or occasional goat or cow.

The second category works on the same level with a handbook-type of approach that provides technical directions regarding methods of keeping these animals, of feeding them, etc.

The third and fourth categories both work at a higher level of system analysis. They encompass practical approaches discussing average (virtual) animals and/or their (virtual) owners / keepers together with negative and positive effects on large neighbourhoods or entire cities. The concerns at this level relate to issues such as food supply, public health, social resilience of the city, use of public money on this form of urban activity etc.

The third category itself tends to come from government offices with a strong disciplinary and/or sector focus embedded in a reductionist and linear way of thought. It tends to either focus on advantages or disadvantages (the either/or approach!) while seemingly favouring interdisciplinary or sector "solutions for problems". For example, it would suggest building a laboratory or prohibiting a particular kind of animal considered to be a problem for human health due to a particular disease.

The fourth category looks at issues of urban agriculture in general. It tends to provide an outsider look from the perspective of architects, planners and/or local NGOs themselves. They have essentially a positive approach while mentioning advantages and disadvantages rather superficially.

The fifth and last category consists of some rather academic papers that describe in detail structure and components of what urban livestock is and what it could be. A good grasp of all issues in and around urban livestock requires a look at papers from all these categories; otherwise one would inevitably end up with a lopsided idea in one way or another.

What seems to be lacking is a sixth category of papers that ties all approaches together. An attempt at such a synthesis is made in this bibliography, in a number of recent proceedings, and in a special study by the FAO. This review will first list some history and background to livestock keeping in urban areas. It will then explain the issues at different levels of analysis and review, in some greater detail, the issues and approaches brought forth in the different

categories of reports. It concludes by tying all this together into a synthesis that gives directions for work in development, research and teaching.

### **Animal production in and around cities: some background**

Livestock keeping has been part and parcel of human settlements since the start of civilisation but the variety of form is staggering. A brief outline of the variation and method / level of analysis is given here before proceeding to a review of the information listed in the different literature categories of this bibliography.

Animals have served in rites for sacrificial purposes, they can help to upgrade food waste from kitchens and/or agro-industry, they are a form of informal saving and a status-symbol, and last but not least, they serve for the production of different forms of food.

Over the ages, however, human settlements have become larger and the association with animals remained but the nature of the interactions changed. The story goes that one of the Medici queens forbade the trading of animal products on the main bridge in Florence because she did not like the smell (A. Scappini, pers. comm., 2000). That bridge is now the centre of trade in gold and jewellery. The German economist Von Thunen showed some 150 years ago how the dairy and vegetables were produced in or near the city, how cropping was done at a somewhat greater distance and how extensive animal production took place at a much larger distance. That model still seems to be quite useful and it is generally observed in many tropical countries, even when it does not explain all local differences, partly because more roads and other market structures make distances smaller.

Other factors of change are that certain functions of animals disappear: for example, animal draught in cities due to increased availability of oil. Increased use of oil is also related to the fact that the scale of operation increases and Phelan reports that the dairy cattle were expelled from Copenhagen at the end of the 19th century. Prior to that they had been largely fed on spent brewery grains from the beer manufacture but the proximity of people and factory combined with different life expectations to make animal production in the city unpopular.

Similar expulsions of livestock production took place recently in Singapore, even to some extent in densely populated in countries like the Netherlands, and over the past half century in so-called dairy colonies such as the Aarey milk colony near Bombay some 50 years ago, or in the Kuku milk colony near Khartoum.

At present there are plans to move pig production out of places such as Ho Chi Minh City and one possible evolution of pig production in the Netherlands is the move to industrial parks. However, to date, there are still many cities where animals are part of urban life and urban agriculture. The question is not whether they should leave or not, but why and how they should continue (or leave). The gist of this review is not a yes –an approach that focuses on local solutions to local problems.

### **Complexity in urban livestock systems: perception and scale**

The variety of ways and purposes of keeping animals is almost endless: one only needs to look at the titles in the bibliography. The variation is even larger when one starts to notice the different perceptions that one can have to establish the usefulness and problems of these different forms. One report talks about the income raised by a small single-parent family in a slum through urban livestock, another thinks in terms of large enterprises with tens of thousands of chickens owned by a rich investor.

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Such diversity can easily lead to misunderstanding and unnecessary arguments because different people have different things and conditions in mind when they talk or write about urban livestock. This is a typical case of what are nowadays called issues of “complexity”, i.e., of problems that are highly interconnected and where different people have different perceptions regarding the definitions and (side)-effects of such a system. One way to cope with such a variation is to simplify the issues, which partly depends on the question one has in mind.

A useful simplification of the discussion regarding the variety of periurban livestock systems looks at major groups of stakeholders (who are involved); what are their perceptions about problems and opportunities of urban livestock (dung is a problem unless it can be used in a garden or for biogas generation); what are the types of urban context (what sort of city are we talking about); and what is the level of analysis in space and time (do we talk about problems and changes that occur at my home this week, or do we discuss changes that take place over several years and over the whole region).

Hardly any of the reports makes an explicit attempt at describing the level of analysis and the stakeholders, even though the approach that they take is rather obvious from taking a first look at the report. From what we have read one can notice a large variation: without trying to be comprehensive one could suggest the following patterns and scales of analysis:

Stakeholders are consumers (ranging from home consumption to purchases from supermarkets), producers (backyard / semi-commercial / commercial), neighbours and neighbouring communities, administrators (veterinarians, public health servants, slum-kings and urban government);

Levels of analysis in space range from family and animal to city level, to regional and even (inter)national level (backyard chickens are produced locally and commercial broilers have to be flown in);

Levels of analysis in time range from time-spans of a day (how to survive tomorrow), a year (how to overcome the next dry season), to 10 or more years (how to supply the city with sufficient animal protein in 2020);

Linear and non-linear approaches are exemplified by “either – or” *versus* “and – and”; as well as “direct” *versus* “indirect” production (the animal is useful or not *versus* the animal is useful in one aspect and not in another; if the animal produces no protein for the local population she is useless in view of the dung problem *versus* even if she produces no protein she can still be essential; the contribution of animals to food production is only small on a city basis *versus* small changes in one place can have dramatic effects elsewhere);

Perceptions about functions of animals range from rather linear ones, animals as pets, animals as saving account or money-spinner, to animals as producers of meat and eggs, to the rather broad and non-linear ones such as the function of animals in local resilience of the neighbourhood, and emancipation of women's groups. The idea that matter and mind is separate is also apparent in this approach. This idea is to be redrafted, because it should be clear that mental quiet can only be achieved when the minimal physical requirements are met (and vice versa);

Professional background in which generally reductionist-trained experts will tend to split the problem into disciplinary problems without looking at the whole (e.g., low production of an individual animal is not so problematic to a farmer if that implies a high income; biological performance of an animal is all that counts).

The following sections summarise the conclusions from the different categories of literature. Essentially they reorganise the information that was summed up in this paragraph.

### **Five categories of reports on livestock in urban conditions**

As said before, it is necessary to simplify and categorise information if one wants to be able to separate the forest from the trees. The type of classification determines, however, the result of the analysis. Therefore, readers should use their own judgement in reading all this: it is just a convenient way to organise the otherwise so variable literature.

#### **Category I: Anecdotal information from family and animal level**

This category of reports basically focuses on case studies and anecdotal stories of how a particular family or small community copes with the keeping of animals, how it is happy and or unhappy with its rabbits, backyard chickens, guinea pigs, an occasionally with a goat or a cow. It is the kind of information that is essential to keep policy makers and people from categorising, to help them keep their feet on the ground, to understand local variation and to appreciate the wealth of indigenous technical information that is available in local communities. It also depicts the degree of interconnectedness of systems at that level even though some of this literature might do better on that aspect.

A typical example of physical interconnectedness is given in the study of urban livestock in Mexico City. Women take the day-old tortillas to sell them as animal feed at the farm where they buy their milk. And the dung of the cows goes to other people that have small vegetable plots. More socio-economic aspects examples are that women can (re)gain status and independence by having a few animals, while for certain religions it is simply impossible to think that one could live without animals, whether cows in India, pigs in South India or goats and sheep in the Id festival of the Moslems.

Only participatory approaches and a preparedness to be open for other perceptions of reality can help academics and policy makers to start understanding these intricacies. These will make them more careful about intervening and it should make them realise the value of local participation in setting agendas for sometimes important changes (e.g. due to serious dung effluent problems, issues of local resilience). A serious drawback present in the literature on case studies is that they discuss only one condition, i.e. one remains unaware of the context-dependency of the anecdotal evidence. One remains blind, therefore, to the fact that what works in one place might not be useful somewhere else and one can remain stuck in a objectivist mode of thought (see category V).

#### **Category II: publications on how to keep animals in urban conditions**

A large collection of quite useful materials exists that explain how one can keep animals. Whether this is in urban conditions or not is of no concern to these authors. They tend to focus on small-scale methods of animal husbandry that also apply to cities. The same objectivist approach underlies these publications and if the recommendations do not fit local conditions one can either dump the book or even better: use local insight to see how and whether the book solution should be modified. Many such books are available, ranging from manuals on rabbit rearing, to the small-scale processing and marketing of animal produce, to the production of duckweed in fishponds and practical hints on how to install and use biogas pits to make more intensive use of dung and excreta. These are very valuable materials full of ideas and practical approaches, but they need to be screened for local suitability.

### **Category III: city level view of animal production specialists and administrators**

Reports in this category address issues at the level of the suburb, but more often at the level of the whole city and/or even nation. By their very nature they have to part from individual cases and they are supposed to generalise. However, by doing so, they tend to be moulded into ways of thought that may not always fit local conditions. It is strange that health officials of the Middle East use health standards from California while conditions and local preferences differ considerably, to say the least.

Moreover, many of these reports are written based on a reductionist academic approach that subdivides the world of animal production into issues of nutrition, breeding, and health while reality may not work along these lines. Farmers' reality is more likely to operate along the lines of local status, short-term income, complaints or praise from a neighbour, love for an animal etc. In other words, many of these reports talk about (virtual) animals and/or their (virtual) owners / keepers. They address legitimate issues that affect whole neighbourhoods or cities but which have little bearing on day-to-day life of individuals. A measure to control average dung-effluent problems punishes the big guilty fellows who dump large amounts perhaps less than the smaller fellows who live almost in the animal shed and who take meticulous care that the place stays clean.

General measures kill and de-motivate local initiatives if they are not by and large in line with local reality. Clear examples are available from world literature where a measure to increase urban health was counter-effective because it did not fit local reality. That is the concern about objectivism in the anecdotal reports from which positive experiences should be translated only with proper consideration of other conditions. The reports in category III refer, however, to a number of serious issues: public health, hygiene, food-safety, excreta effluents, and animal health.

One would have to be cautious to decide on these grounds that livestock is to be banned from the city because collateral damage would be done to social stability, equity. Also, one would have to devise new ways of using and/or recycling the feeds and other resources that are now used for animal production. In particular one would have to look at ways to remedy the problem without throwing the baby with the bathwater. In addition, one might also attempt solutions to the problems outside veterinary medicine, for example a discussion with city planners and social workers, or based on discussions with local stakeholders.

### **Category IV: city level views of architects and social workers (to name a few)**

The category looks at issues of urban agriculture in general, mostly in proceedings of conferences and workshops such as UNDP and Bakker et al. It tends to provide an outsider look by architects, planners and/or local large NGOs themselves. The more recent publications are influenced by concepts of habitat, or of ecological approaches to urban planning. They essentially have a positive approach to urban agriculture in general and they do not mind that animals are part of that picture.

These publications provide the balance and overall picture that animal specialists will need to get their feet back to the ground, although they lack the experience that animal production specialists can provide. Statements such as "animals can provide free meat" were not encountered in the literature resources as such, but they might stem from people who are ignorant about what an animal is or can be to them. Major functions of animals for draught power and large-scale cleaning of waste from agro-industry in cities are on the wane, but why not include some of those in the design of eco-cities and industrial parks.

### Category V: the "overview and insight" of academics and visionaries

A number of papers have attempted either in-depth analysis of particular cases, notably the work such as by Sumberg et al., Mexico, Salvador, Quito. They focus on insight and they illustrate and document very well the large variation in issues, and stakeholders also to some extent as they change over time. Apart from the rather superficial but useful overviews such as in the previous category (IV) there is a more integrative paper by Ann Waters Bayer that needs to be mentioned. It finds a balance between social and biophysical aspects of animal production at several levels of urban systems. It is supplemented by a recent report of the FAO /AGA division that summarises and synthesises the information of case studies mainly from category III. There is still little reported on the analysis of ecological aspects of urban livestock. This would address issues such as:

- Different patterns along which cities will develop /or crash over the next decade or two;
- How can one avoid that a large-scale system inherently results in eutrophication and pollution, a problem that is basically the same for animal and industrial production?
- Which mixes of crops, animals and people (include businesses) are stable, resilient and practical for promotion (in analogy with the approach to business parks)?
- How should societies handle the issue of public perception regarding consumption patterns?
- To what extent should public funds and/or tax rebates be used to stimulate industrial forms of livestock production to satisfy some virtual demand?
- Do politicians have the courage to popularise the idea that sustainable development includes ecological consumption patterns that adjust demand to "what is on offer"?

### Concluding comments

The reports on urban livestock keeping illustrate quite clearly the range of forms and contexts in which livestock plays a role. Very few of the reports attempt a synthesis and one major suggestion from this brief review is therefore to go for integration rather than for detail at this point. Another suggestion is to arrange the discussion according to the level and the perceptions of the stakeholders, their time and space scales, and the professional background of the authors. Last but not least there is a suggestion to achieve synthesis through the application of some system theory in the larger picture of the emergence of mega-cities and market change that is to be expected, against the background of a few questions regarding the directions of change for sustainable development.

**Arias E. (2000) Integrated teaching linking veterinary medical-animal husbandry students to urban agriculture in Mexico City. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFL, Leusden The Netherlands.**

[urban livestock](#)

[urban livestock; Mexico](#)

An educational model in integrated education was constructed and directed to second-year students to analyse vegetable and animal by-products for animal feed in urban livestock production. The model was also useful to orient students towards parasitology and clinical work. The use of this model in Mexico City, and the problems encountered are presented.

**Ayeh, E (1994). Rabbits: small animals for small spaces. In: ILEIA Newsletter vol. 10 no. 4 (December 1994) p. 25. HPI Cameroon program, PO Box 467, Bamenda, Cameroon**

**Supplier: Information Centre for Low-External-Input and Sustainable Agriculture (ILEIA), PO Box 64, 3830 AB Leusden, The Netherlands**

urban livestock

animal production; Cameroon; rabbits; small-scale agriculture

Rabbits are productive and easy-to-keep animals that can recycle grasses and crop wastes into high-quality protein. Backyard rabbit-keeping requires little space and few external inputs. As Ateh Eugene explains, for these reasons and more, Heifer Project International (HPI) is promoting rabbit-keeping in Cameroon. (ILEIA)

**Ba Diao, M. . L'élevage laitier en zone périurbaine de Dakar: situation et perspectives. Agriculture périurbaine en Afrique subsaharienne p. 149-159**

food security and nutrition urban livestock

Senegal; dairy products; public health; periurban agriculture

Senegal faces a considerable dairy product shortfall. Domestic consumption is for 50% covered by imports, primarily of powdered milk. Private or semi-public initiatives, based on importing exotic animals, have been launched, but nevertheless intensive dairy farming is still at its infancy. It is difficult to acquire inputs required, particular animal feed besides the marketing system and technical management pose problems. The socio-economic environment in the dairy sector makes dairy farming costly and thus hard to practise on small scale farms. (NB - abstract adapted form original)

**Bastianelli, D. ; Arbelot, B.; Guérin, Hubert Développement et organisation des filières avicoles autour de Dakar. II. Organisation d'un service d'appui et de contrôle sur la qualité des aliments de bétail Agriculture périurbaine en Afrique subsaharienne, p. 167-172**

food security and nutrition urban livestock

poultry farming; periurban agriculture; Senegal;

The project aimed at supporting the creation of a poultry feed production and raw material quality control service in the Dakar region. The urban poultry sector is characterised by a recent rapid expansion and a some what lacking structure. Other features are a larger market, more open to industrial poultry products, easier access to supplies etc. Eventually there might occur problems regarding noise and manure disposal. This influence as described decreases in Dakar the further one moves from the city. Further development of the sector requires good availability of inputs and services. However this would require a minimum of coherence and organisation, which are lacking. As quality control in the animal feed market is sometimes inadequate producers prefer to cut costs rather than to improve the quality. The key bottlenecks can only be addressed by strong political will. However in some of the

areas like organisation of interest groups farmers can organise themselves. Addressing the quality of poultry feed should imply taking into account the entire production system. (NB - abstract adapted from original)

**Bastianelli, D. (2001) Methods to Promote Healthier Animal Production: Examples in Periurban Poultry Production Around Dakar. Paper for topic 1 of the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. Proceedings, available On: [www.ruaf.org](http://www.ruaf.org).**

R&D methodology    urban livestock  
Senegal; poultry; contamination; diseases

Animal diseases in periurban intensive poultry production are associated economical hazard for the producers. There is also health hazard for the consumer, with evidences of foodborne diseases due to poultry meat in Dakar. Most contamination and diseases originate in the inappropriate practices and buildings, as well as in the lack of regulations and controls. The objectives of the actions led by ISRA and CIRAD in Dakar are i- to develop an avian pathology laboratory to support the production sector, ii- to animate a network on epidemiological information (RESESAV) and iii- to study the contamination of poultry products through the production chain in order to identify critical points.

The involvement of veterinarians and field technicians in this effort is considerable. It is the basis for all the actions of the network : they sensitize the farmers to the importance of prevention, they use the laboratory to help for diagnosis and provide a feedback on disease nature and severity which allow a general epidemiological survey and they facilitate access to the field for the experiments.

The development of tools and actions for the control of diseases in poultry production appears to be a "virtuous cycle" because the presence of a reliable laboratory encourages veterinarians to provide sound diagnosis and the farmers to adopt a more rational management of health in their flock, which in turn stimulates the activity of the laboratory.

**Bellows, Anne C., Robinson, V., Guthrie, J., Meyer, T., Peric, T. and Hamm, Michael W. (2000) urban livestock Agriculture in State of New Jersey. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAF, Leusden The Netherlands.**

urban livestock community development  
United States

In old (for the U.S.) established industrial cities of New Jersey, one can often still see the sturdy working class neighbourhoods of early 20<sup>th</sup> century Italian and German immigrants surviving today with out-buildings for chickens and rabbits securely in place. For the most part, these populations have moved up the economic scale and out. New immigrants replace them, bringing their own rural and urban agriculture traditions, including livestock raising. Personal experience and anecdotal information from residents tell a story of the diverse nature and the importance in food security

for urban dwellers in the U.S. Urban livestock agriculture for household consumption exists in the “hemispheric North” largely as undocumented (unpaid) labour, food production, and land use. The craft and traditions of growing food generally, and ULA specifically, appear to be disappearing, even as they may flourish on a small scale. This article focuses on the United States, with particular reference to the densely populated eastern state of New Jersey. It outlines some of the barriers to and opportunities for urban livestock agriculture with an emphasis on household-scale production in urban centers in the U.S.

**Bentinck J. (2000) Delhi's Urban Growth and the Stray-Cattle Controversy. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

urban livestock rural-urban linkages  
India; urbanisation;

The streets of urban India are characterised by the presence of animals: cattle, bullocks with carts, monkeys, dogs, elephants, and occasionally some scavenging pigs. Cows are certainly the most visible fauna. The presence of dairy farming in the city is explained here by the way that villages and its people become urbanised. It may look that this is an undisputed part of city life, but the case of Delhi shows that it is surrounded by controversy, which calls for creative policy action.

**Best, John. Homestead livestock and household livelihood in Sarawak: innovations versus improvements. In: *Community Development Journal* (volume unknown)**

urban livestock  
Malaysia; animal husbandry; livestock keeping; farming systems research

Describes a rice-based farming system in Malaysia with additional perennial cash crops and a homestead livestock component. The article analyses the role of the household economy and assesses the scope for improvement of household livestock production, looking at: animal feeds; labour; husbandry skills; marketing; finance; and distribution of technical information. (WB)

**Cardinale E., Porphyre, V., Bastianelli, D. . (2001) Methods to promote healthier animal production: examples in periurbanpoultry production around Dakar. Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. Proceedings, available On: [www.ruaf.org](http://www.ruaf.org).**

R&D Methodology urban livestock  
epidemiology; poultry; networks; veterinarian; diseases; urban agriculture; methods

Animal diseases in periurban intensive poultry production mean economic problem for the producers. There is also health risk involved for the consumer. For instance the evidences of foodborne diseases in poultry meat in Dakar. Most contamination and diseases are due to inappropriate practices and buildings, and indirectly to a

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lack of regulations and controls.

Actions led by ISRA and CIRAD in Dakar are aimed at developing an avian pathology laboratory to support the production sector and at developing; research into the contamination of poultry products through the production chain; and facilitating a network on epidemiological information (RESESAV). The involvement of veterinarians and field technicians in this effort is considerable. The development of tools and actions for the control of diseases in poultry production appears to be a “virtuous cycle” because the presence of a reliable laboratory encourages veterinarians to provide sound diagnosis and the farmers to adopt a more rational management of health in their flock, which in turn stimulates the activity of the laboratory.

**City Farmer, Canada's Office of Urban Agriculture (1999). New York: bees bring taste of honey to inner city. Urban Agriculture Notes**

<http://www.cityfarmer.org/beesNY.html>. 2 p.

**Supplier: City Farmer, Canada's Office of Urban Agriculture**

urban livestock

beekeeping;; United States

Describes an experiment with beekeeping on rooftops in New York, USA. (NB)

**Drechsel, P., Abaidoo, R.C., Amoah, P. and Cofie, O.O. (2000) Increasing use of poultry manure in Ghana: Is farmers' race consumers' fate? In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAF, Leusden The Netherlands.**

urban livestock waste recycling

Ghana; manures; waste; reuse

Livestock production is a vital part of urban and peri-agriculture in Kumasi, where many farmers benefit from large amounts of cheap manure. However, with increasing competition for this resource the manure is seldom stored long enough to prevent the contamination of food and water with pathogens as farm gate and market analyses show. Interventions to prevent the spread of infection should focus first of all on the consumer household. Farmers' access to clean irrigation water can only be secured if their own practices do not contribute to water pollution. The authors describe the importance to farmers and the problems faced by the City authorities.

**Ehui, S.K., Benin, S. and Gebreselassie, Nega. (2000). Factors affecting urban demand for live sheep: The case of Addis Ababa, Ethiopia. Socio-economics and Policy Research Working Paper 31. ILRI (International Livestock Research Institute), Nairobi, Kenya. 32 pp.**

urban livestock

marketing; urban livestock; sheep; Ethiopia

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A solid but rather linear and empirical approach to the analysis and prediction of trends in marketing of live sheep around Addis Ababa. It states that the share of small ruminant meat, especially sheep, in the demand and consumption of meat in general grows. Therefore it assumes that information about consumer expenditure behaviour and demand parameters for live sheep will be valuable for several interest groups in the sheep industry. Using the Heckman two-stage approach, this study shows that sheep prices and household income, as well as socio-demographic factors, including household size and composition, significantly affect the likelihood of buying live sheep and expenditures on live sheep. Projections of live sheep demand and supply in Addis Ababa in 2010 and 2020 show that sheep producers in Addis Ababa alone will be able to meet up only 27% of the demand.

**Foeken, Dick and Owuor, S.O.. (2000) Livestock in a middle-sized East-African town: Nakuru. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAF, Leusden The Netherlands.**

[urban livestock waste recycling](#)

[Kenya](#)

In 1999, a general survey among a representative sample of almost 600 households was held in the Kenyan town of Nakuru. During the survey, basic information was collected on urban farming practices by the Nakuru population, with the aim to obtain a general overview of urban agriculture in this town. Part of the survey covered several aspects of livestock keeping. This article is based on a larger report by the same authors entitled *Urban farmers in an East African town: the case of Nakuru, Kenya*.

**Food and Agriculture Organization (FAO) (1997). Livestock and the environment: meeting the challenge. 12 p. Food and Agriculture Organization (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy; the United States Agency for International Development; World Bank**

[urban livestock](#)

[livestock keeping; environmental aspects; mixed farming; land use; access to land; smallholders](#)

This report, and the accompanying booklet, lists findings of a multi-donor study coordinated by the FAO on livestock-environment interactions conducted between 1994 and 1996. Issue at stake is how to find a balance between a fast growing global demand for food and the need to sustain the natural resource base of land, water, air and biological diversity. Livestock production is the world's largest land user and may soon be its most important agricultural activity in terms of economic output. The ensuing animal waste problems are equally huge and weigh heavily on the environment. The study served as a starting point for deeper insight in this politically sensitive and complex subject. In the framework of the study, a number of activities have been launched dealing with information gathering and exchange

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focusing on environmental hotspots, and with the provision of decision-making support. It is hoped that in this way, livestock-environment issues will be systematically incorporated in local and national plans, and into bilateral and international development programmes and projects. (WB)

**Gertel, Jörg; Samir, Said (2000). Cairo: urban agriculture and visions for a 'modern' city. In: Growing cities, growing food: urban agriculture on the policy agenda, p. 209-234. DSE, GTZ, CTA, SIDA**

city ecology urban livestock land use planning

urban livestock; food security; food policy; asset strategy; health; ecology; economic impact; gender; urban policies; reuse of waste; poverty; Egypt

Forms of urban agriculture in Cairo are related to its extremely high population pressure and the government policy, especially with regards to food subsidies. Green open space is scarce. Small-scale animal husbandry, such as chicken raising, is interesting as it provides for expensive proteins and can be practised in confined areas. In certain cases organic waste is used as cheap fodder to feed the animals. Most people engaging in urban agriculture are poor and production is mainly for subsistence purposes. A second element is that animals are important assets. The image of food produced in Cairo is not very positive and there are indications of health risks associated with urban farming. Scientist and authorities consider urban agriculture an oxymoron as they associate urban with modern and agriculture with rural and backward. It is believed that urban farming tarnishes the image of Cairo with negative implications for the modernisation of Cairo. Nevertheless to a section of the urban poor small-scale animal husbandry is of critical importance and is an important strategy to cope with food security in Cairo. (NB)

**Ghirotti, M. (1999). Making better use of animal resources in a rapidly urbanizing world: a professional challenge. World Animal Review 92, p 2-14**

urban livestock

livestock; animal production; farming systems; urbanisation; traditional farming; intensive farming; animal housing; animal diseases; pests of animals; abattoirs; urban areas; environmental impact; draught animals; pet animals; wild animals; disease transmission

This very balanced article takes a positive but cautious look at the place of livestock in urban agriculture. It acknowledges the problems associated with various classes of livestock in such conditions, e.g. disease and nuisance. However, it also stresses the possible benefits of livestock, and it discusses how standard thinking in government offices may have to be reversed to better utilize the potential of this kind of enterprise, not in the least for the poor, and for women and children. Worth reading in detail!

**Guérin, Hubert; Faye, B. Spécificité de la problématique périurbaine pour les systèmes d'élevage. Agriculture périurbaine en Afrique subsaharienne p. 43-49**

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urban livestock

animal production; poultry; dairy; pigs; food supply

Short cycle animal production (milk, poultry) has a growing share in urban food supply. There is room for improving the production technically and economically. As regards dairy production many technical references are available but their applications limited. A lot of new initiatives emerge to improve traditional systems and to create small and medium scale production units. They need to be made more viable. Collective access to input and output markets can pave the way for technical change for breeders' groups. Poultry production is the most dynamic sector. Pig production needs to modernise and fish production is increasing in periurban areas. In some countries professional organisations become autonomous. Their viability depends on support for research, organisation of marketing a.o. This sector requires a lot of inputs is very open to the market and its overall efficiency is demanding at the technical and organisational level. As the production units are often located in urban areas, they often pose sanitary problems. The hygiene of marketed products is subject to caution. Production needs to meet adequate conditions for safety of producers, consumers and the urban environment. The dynamics of periurban units can favour exchange of know-how with rural units as regards intensification of production and product technology. (NB - abstract adapted from original)

Haan, Cees de; Steinfeld, Henning; Blackburn, Harvey (1997). **Livestock and the environment: finding a balance. 115 p. Food and Agriculture Organization of the United Nations (FAO); United States Agency for International Development; World Bank**

urban livestock

livestock keeping; environmental aspects; mixed farming; land use; access to land; smallholders

This report, and the accompanying booklet, lists findings of a multi-donor study coordinated by the FAO on livestock-environment interactions conducted between 1994 and 1996. Issue at stake is how to find a balance between a fast growing global demand for food and the need to sustain the natural resource base of land, water, air and biological diversity. Livestock production is the world's largest land user and may soon be its most important agricultural activity in terms of economic output. The ensuing animal waste problems are equally huge and weigh heavily on the environment. The study served as a starting point for deeper insight in this politically sensitive and complex subject. In the framework of the study, a number of activities have been launched dealing with information gathering and exchange focusing on environmental hotspots, and with the provision of decision-making support. It is hoped that in this way, livestock-environment issues will be systematically incorporated in local and national plans, and into bilateral and international development programmes and projects. (WB)

Hooft, K van 't. (2000) **Cisticercosis, a Complex Zoonotic Disease. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFL, Leusden**

### **The Netherlands.**

urban livestock health and environment  
zoonoses; Bolivia; Cisticercosis

Cisticercosis is one of the most dangerous diseases caused by a parasite that passes from animals to human beings. It is most prevalent in developing countries, and is closely related to economic standard, culture, hygiene, and the way animals and people share the same living space. Major problems with this disease exist in Latin America, and in the non-Islamic parts of Africa and South East Asia, especially India. This article describes the case of cisticercosis that originates from pigs (*Cisticercosis cellulosae*) with reference to Bolivia, South America.

### **Jahn, Gundula (1996). Die Bedeutung der Dienstleistungsbereiche fuer die periurbane Haltung kleiner Wiederkaeuer am Beispiel Marouas, Kamerun. 75 p.**

urban livestock services  
Cameroon; urban livestock; ruminants; agricultural service provision

Explores the importance of provision of services like agricultural advise, veterinary support and supply of inputs on the potential for improvement for keeping small ruminants. An inventory is made of available services and this is compared to the productivity of the herds of different household categories keeping sheep. (NB)

### **Jahn, Gundula (1997). Chancen und Risiken der kleinbauerlichen urbanen Tierhaltung. On: <http://www.cityfarmer.org/qtzanimal.html#GTZanimal>. German Agency for Technical Cooperation (GTZ), PO Box 5180, D-65726 Eschborn 1, Germany**

urban livestock  
livestock keeping; animal husbandry; participatory approaches; institutional support

Looks at the potential of urban livestock keeping, but also at problems and risks in connection with it, such as transmittable diseases. The author examines how support to urban livestock keeping by poor urban dwellers can be institutionalised. In order to guarantee involvement of all stakeholders concerned problem analysis and solving should be approached in a participatory manner. (WB)

### **Karbo, N; Bruce, J; Okantah, SA. A survey on periurban dairy in Northern Ghana. 9 p. Animal Research Institute, POB 52, Nyankpala-Tamale, Ghana**

urban livestock  
dairy production; Ghana; livestock

Based on a survey to characterise the periurban dairy production system in Northern Ghana. Cattle were raised for milk, manure and cash. Milk produced was partly sold and partly consumed by the household. Forty-four percent of the interviewed indicated that they gave supplementary feed to their cattle. All cows calving in the wet season were milked. Estimated average milk production per herd per day is 6.6

litres in the wet season and 1.7 litres in the dry season. (NB - adapted from original abstract))

**Little, Peter D. The dairy commodity system of the Kismayo region, Somalia: rural and urban dimensions. 13 p. Institute for Development Anthropology, 99 Collier street, POB 2207, Binghampton, NY 13092, USA**

urban livestock rural-urban linkages

Somalia; livestock; marketing; dairy production

The paper discusses the dairy commodity system in the Kismayo region in Somalia with an emphasis on marketing aspects rather than on the production dimensions of the system. (NB)

**Losada, Hermenegildo (et al.) (1999). Suburban livestock rearing by smallholders in the backyards of Xochimilco in the south-east of Mexico City as an important strategy for sustainable urban agriculture. Urban Agriculture Notes. <http://www.cityfarmer.org/livestock.html>, 8 p. Animal Production Systems Area, Department of the Biology of Reproduction, Universidad Autónoma Metropolitana, Iztapalapa, Mexico**

**Supplier: City Farmer, Canada's Office of Urban Agriculture**

urban livestock

livestock; Mexico; Mexico City; family farms; household wastes; poultry; pigs; backyard farming

Characterises poultry and pig keeping in the backyards in the vicinity of the house in the suburban area of Xochimilco, Mexico City. Motives for rearing animals are mainly subsistence and money saving for emergency expenses. In the case of pig raising this was also done to supplement the household budget. The feeding on the animals was based on household waste, stale tortilla, alfalfa and other feeds. The number of pigs kept ranges from 1-5 and the number of chickens from 1-50. (NB)

**Losada, Hermenegildo (et al.). Urban agriculture and livestock in the City of Mexico: an option for a sustainable future. Urban Agriculture Notes <http://www.cityfarmer.org/mexico.html>. Animal Production Systems Area, Department of Biology of Reproduction, Division of Biological and Health Sciences, Universidad Autónoma Metropolitana, Iztapalapa, Mexico**

**Supplier: City Farmer, Canada's Office of Urban Agriculture**

urban livestock city ecology

Mexico; livestock; crop production; reuse of waste; environment; family production

Presents research findings on urban agriculture of a team of the Autonomous Metropolitan University at Iztapalapa in Mexico. Three forms are distinguished and within these forms, animal production and arable production are discussed as well as the different perceptions of producers and authorities towards the phenomenon of urban agricultural production. Characteristics common to all three types are the use

of recycled materials and the involvement of all family members in the activities.  
(NB)

**Mantovani, A. (2000) Veterinary Urban Hygiene in Developing Countries. In: *Urban Agriculture Magazine, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.***

urban livestock health and environment  
zoonoses; WHO; policy

The World Health Organization (WHO) and its branch, the Veterinary Public Health (VPH) initiated officially to develop its interests for the problems connected with urban areas in 1977, dedicating to the subject conspicuous energies. The subject (i.e. the veterinary action in urban areas) was denominated Veterinary Urban Hygiene (VUH). VUH has developed differently in the various countries, ranging from a maximum of activities (e.g. in Italy, in which the public veterinary services belong totally to the health administration, and perform all public veterinary responsibilities), to a minimum, in which few limited activities (generally some rabies control) are performed. This article gives an overview of zoonoses and the actions taken.

**Mbiba, Beacon M (1994). The cattle of Chitungwiza: conflicts on the rural-urban fringe. In: *ILEIA Newsletter vol. 10 no. 4 (December 1994) p. 22-23. Mexico City: DDF. Department of Rural and Urban Planning, University of Zimbabwe, PO Box MP 167, Harare, Zimbabwe***

**Supplier: Information Centre for Low-External-Input and Sustainable Agriculture (ILEIA), PO Box 64, 3830 AB Leusden, The Netherlands**

urban livestock rural-urban linkages  
animal production; home gardening; livestock farmers; rural development; urban environment; Zimbabwe

Expanding cities are engulfing farmland without providing alternative land for the displaced rural people, often peasants without land title. Herders continue to use the unbuilt spaces, the "city commons", but many residents do not appreciate the presence of cattle. Beacon Mbiba looks at this potentially conflictual situation in urban Zimbabwe. (ILEIA)

**McCroskey, Robert A (1999). Rabbit raising in cities. Urban Agriculture Notes <http://www.cityfarmer.org/rabbits.html>. 2 p.**

**Supplier: City Farmer, Canada's Office of Urban Agriculture**

urban livestock  
rabbits; Nigeria; Cuba; Hungary

In reply to the question whether there are studies mentioning rabbit raising in urban areas, three examples on rabbit raising are provided, from Nigeria, Cuba and Hungary. (NB)

**Meares Cohen, Alison (1996). Can Mrs. O'Leary's cow come home? Heifer Project International, Chicago. 34 p.**

urban livestock

youth; environment; food security

This report concerns an effort in America's 'second city' to bring the benefits of small livestock production to city youth and women. The benefits found were: health, agricultural literacy, community cohesion, enhanced environment, income, and pleasure. (JS)

**Meares Cohen, Alison (1997). Cows in the city or urban agriculture. The Exchange no. 86 (Jan-March). 2 p. Heifer Project International, PO Box 808, Little Rock, Arkansas 72203, USA**

urban livestock

livestock keeping

Provides an overview of urban agriculture activities in the world with a focus on raising animals in cities. (WB)

**Meares Cohen, Alison (1999). Heifer Project International announces: urban animal agriculture initiatives in Chicago. Urban Agriculture Notes <http://www.cityfarmer.org/animalag.html>. 2 p. Heifer Project International, PO Box 808, Little Rock, Arkansas 72203, USA**

**Supplier: City Farmer, Canada's Office of Urban Agriculture**

urban livestock

United States

An introduction to the work of Heifer Project International (HPI) in urban livestock in Chicago. (NB)

**Meares Cohen, Alison (1999). People at the Centre of Urban livestock Projects. In: For hunger-proof cities: sustainable urban food systems / Mustafa Koc, Rod MacRae, Luc JA Mougeot and Jennifer Welsh (eds), p. 90-94. ISBN 0\_88936\_882\_1. CAD 35.00. International Development Research Center (IDRC), PO Box 8500, Ottawa, Ontario, Canada K1G 3H9**  
**Supplier: International Development Research Centre (IDRC), Publications Department, PO Box 8500, Ottawa, Ontario, Canada K1G 3H9**

urban livestock community development

food security; environment; employment

Promoting urban agriculture is an important means ensuring sustainability of regional community food security and human settlements. Too often the focus is exclusively on technology and agricultural production methods. In its urban animal-agriculture initiative in Chicago, Heifer Project International promotes a method of participatory

## Urban Livestock

development that enables low-income neighbourhood groups to reach beyond the goals of beautification and environmental improvement and become a vehicle for social and economic development in their communities. The elements of that model include the interdependence of the landscape and lifescape, full participation of intended beneficiaries, values-based planning, and "passing on the gift" When approached as a vehicle for community development, urban agriculture can bring multiple benefits: economic benefits, by providing opportunities to earn income; educational benefits, by teaching technical and job skills; environmental benefits, and, finally, empowerment. It is at the crossroads of these goals that urban agriculture projects can thrive and influence the character of human settlements. (Abstract adapted from original)

**Muchaal P. (2001) Zoonoses of Dairy Cattle, with reference to Africa. In: *Urban Agriculture Magazine*, no 3, Health , March 2001, RUAf, Leusden The Netherlands.**

health and environment      urban livestock  
West Africa; zoonoses; dairy;

Zoonoses are infections naturally transmitted between vertebrate animals and humans, either directly, or indirectly through consumption of contaminated foods. Traditional zoonotic diseases for which effective control measures and cures are available in affluent countries, are still a cause of morbidity and mortality in humans and animals in developing countries. Increasing urbanization, the growth of livestock production in close proximity to humans, the rising rate of HIV, inadequate hygienic practices, and cultural customs and beliefs exacerbate the transmission, persistence and impact of zoonotic diseases in these regions. This article is a literature review focusing on West Africa.

**Nauheimer, Holger (et al.) (1995). Livestock production and human welfare: 8th International Conference of Institutions of Tropical Veterinary Medicine. In: *Agriculture + Rural Development* p. 1-4. 4 p. Deutsche Stiftung fuer Internationale Entwicklung (DSE)**

urban livestock  
livestock keeping; periurban agriculture; public health; environmental aspects

One of the 5 workshop themes was on periurban livestock production and development. Recommendations were formulated on the inclusion of urban livestock production in overall agricultural policies and on examining the impact of periurban livestock production on the environment and public health. (WB)

**Nunan, Fiona (2000) Livestock and livelihoods in Hubli-Dharwad, India. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAf, Leusden The Netherlands.**

urban livestock rural-urban linkages

## Urban Livestock

India; dairy; buffalo; policy

Small urban dairies and roaming pigs are a common sight in Hubli-Dharwad, India and make an important contribution to household livelihoods and urban food supplies. Policy measures, however, are threatening the legality of keeping livestock in urban areas and, therefore, livestock owners' livelihoods. This article gives more insight in this discussion.

**Office for International Cooperation, Faculty of Veterinary Medicine (1996).**

**Urbanisation: veterinary public health consequences. In: Equator: newsletter on veterinary aspects of international development cooperation Vol. 8 no. 5 p. 1-6. Office for International Cooperation, Faculty of Veterinary Medicine, Utrecht, The Netherlands**

urban livestock health and environment  
public health; health hazards

Reports on a symposium held at Utrecht, Netherlands, September 27, 1996. Issues addressed were: (1) veterinary public health; (2) production and consumption; (3) living in a healthy environment; and (4) animals as a source of diseases in human beings. (WB)

**Orskov, B (1994). Landless livestock keepers. In: ILEIA Newsletter vol. 10 no. 4 (December 1994) p. 24. Rowett Research Institute, Greenburn Road, Bucksburn, Aberdeen AB2 9SB, UK**

**Supplier: Information Centre for Low-External-Input and Sustainable Agriculture (ILEIA), PO Box 64, 3830 AB Leusden, The Netherlands**

urban livestock  
animal production; land ownership; landless; livestock farmers; rural development; small-scale agriculture; Sri Lanka

What is a landless livestock keeper? Near cities there are industrial dairy or fattening units with next to no land but with high capital input and doubtful sustainability, as manure disposal creates problems. But here Bob Orskov writes about a much larger group: the landless poor who keep animals in cities or intensive cropping areas. (ILEIA)

**Panigrahi, S (1994). Parallels in dairy and poultry development strategies and issues relating to urbanisation in the Eastern India region. (Unpublished paper). Natural Resources Institute, Chatham Maritime, UK. 48 p.**

urban livestock  
India; livestock; poultry; urbanisation; food security; gender; environment; marketing; research

This paper begins with the outlook that the high nutritional value, the range of secondary products, the relative ease of production and marketing, and the potential of reuse of urban waste make livestock of particular relevance for urban/periurban

## Urban Livestock

agriculture in India. Research needs are identified as safe food, nutritive value of periurban feed resources, and environmental pollution. Women are seen as particularly important in urban livestock and poultry production. Specific cities and organizations are cited, some as best practice. (JS)

**Pantuliano, Sara (2000) The Beja urban economy –understanding and responding to an evolving reality. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

urban livestock

Sudan; pastoralism; migration

The article briefly describes the migration of Beja pastoralist labour to Port Sudan from Halaib Province (NE Sudan). It reviews the different livestock holdings that the Beja have once in town and shows that, although most urban-based pastoralists live in great poverty, some manage to successfully exploit urban opportunities whilst continuing to engage in rural-based livelihood strategies. The article also analyses the failure of development agencies working in the region to tailor their programmes to the situation of urban pastoralists and concludes by offering some initial reflections for development planners and policy makers on opportunities for harnessing rural-urban linkages.

**Peters D., Thi Tinh N., (NIAH), Than Thuy T.(2000) Improved Feed for Pig raising in Vietnam. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

urban livestock R&D methodology

Vietnam

Sweetpotato vines are an important feed stuff in sweetpotato-based pig feed systems. Two constraints to using vines as a feed source are the heavy labor requirements for preparation and difficulties with storage. Vietnamese farmers, mostly women, spend an average of one to two hours each day preparing sweetpotato vines to feed to one or two pigs. As the number of pigs increases, even more time is spent on chopping vines. Moreover, after sweetpotato roots are harvested, a large amount of vines need to be processed in order to be stored as feed for later when vines are no longer available in the field. In the Red River Delta area close to the capital city of Hanoi, farmers cultivate sweetpotato, inter-cropped with corn, exclusively for vine production as pig feed. The pigs are grown mainly for urban meat consumption in Hanoi. The article informs us about two sequential on-farm trials, which were carried out to reduce demand for women's labor and improve pig growth efficiency using fermented sweetpotato vines.

**Poynter G. and Fielding, D (2000) Urban livestock in Kumasi, Ghana, Survey findings. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

## Urban Livestock

urban livestock

Ghana; food production; chickens

Income generation and household food production were the main reasons given for livestock keeping in urban Kumasi, Ghana, as determined by a survey carried out there in 1999 by the authors. The survey was undertaken to identify: There has been much qualitative discussion of urban livestock keeping in recent years but little quantification. This survey was a contribution towards correcting this situation.

**Prudencio Boehrt, Julio (ed.) (1997). Agricultura urbana en americana latina: memoria. 252 p. Agricultura Urbana Investigaciones Latino Americana (AGUILA), c/o ETC Andes, La Paz, Bolivia. Casilla 9355, La Paz, Bolivia**  
hydroponics wastewater reuse urban livestock  
Latin America; workshops

The outcome of a seminar on urban agriculture, held in La Paz in 1995, these proceedings are subdivided in a number of themes for which the situation in Latin America is analysed: (1) hydroponics; (2) waste recycling; (3) homegardens and communal gardens; (4) small livestock rearing. (WB)

**Salih, Mohamed; Mohamed, A (1985). Pastoralists in town: some recent trends in pastoralism in the north west of Omdurman district. Pastoral development network paper no. 920b (August 1985). 21 p. Overseas Development Institute, Agricultural Administration Unit**  
urban livestock

Khartoum; Sudan; pastoralism; animal husbandry; commercial livestock keeping

Using the results of a survey this paper examines the place pastoralists occupy within the modern Sudanese economy. It questions the vision in which ecology is considered as the most important determining factor in the production and rather adopts the view, in spite of the effects of desertification, that political and economic aspects are of primal importance in shaping the future of pastoralism. Sedentary pastoralists in Khartoum have become more dependent on purchased fodder and water and this has led to the commercialisation of pastoral production. (WB)

**Santandreu, A., Castro G. and Ronca, F. (2000) Urban Pig Farming in Irregular Settlements in Uruguay. In: *Urban Agriculture Magazine, no 2, urban livestock, October 2000, RUAF, Leusden The Netherlands.***  
urban livestock waste management

Uruguay; waste; poverty;

One of the survival strategies developed by the residents of urban settlements in Montevideo, Uruguay, is the collection and sorting of household solid waste (organic and inorganic), which constitutes one of the most widespread activities. While inorganic waste is sorted and sold to the local recycling industry, in most cases

## Urban Livestock

organic waste is used as animal feed, mostly for pigs.

Pig farming is a widespread practice in the Department of Montevideo, both in rural and in urban areas. Among urban solid waste sorters, pig breeders constitute a distinct group. This explains the high incidence of health (transmission of diseases from animals to people) and environmental impacts (people living next to pigsties, inadequate final disposal of waste, food preparing systems) that are worsened in the case of pig farming in urban and periurban areas.

The Municipality of Montevideo has developed several strategies aimed at regularizing the status of waste sorters – pig breeders and improving the conditions in which the collection and sorting of food is carried out.

**Sanyal, Biswapriya (1986). Urban cultivation in East Africa. UNU Paris, 75 p.**

horticulture urban livestock city ecology

home gardening; surveys; urban livestock; urban forestry; urban management; geography

This is a groundbreaking report, predecessor to a doctoral dissertation defining the role of agriculture in East African cities, focus on Lusaka. It has an economic slant with excellent micro-geography. (JS)

**Scott, James; Okali, Christine (1993). Livestock production in periurban urban and densely settled rural areas in sub-Saharan africa: a bibliography. Natural Resources Institute (NRI), Central Avenue, Chatham Maritime, Kent ME4 4TB, UK**

urban livestock

urban livestock; livestock production; bibliographies; sub-Saharan Africa; periurban agriculture

Contains 45 annotated references ranging from studies of particular livestock enterprises and comparative studies of the involvement of different pastoral groups in markets to historical and systems studies of urban centres and their hinterlands. Aim was to identify research needs of particular types of livestock systems. (WB)

**Seré, Carlos; Neidhardt, Rainer (1994). Stadt-Land-Integration im Rahmen periurbaner Tierproduktion. In: Entwicklung + Ländlicher Raum vol. 28 no. 2 p. 10-14**

rural-urban linkages urban livestock services

periurban livestock production; food processing; marketing

Addresses rural-urban linkages as a result of periurban animal husbandry. Contrarily to animal production in developed countries, animal husbandry near cities is very dependent on city waste as a source of animal feed. The nearness of the city allows for a low level of processing of the produce (packaging, quality control, transport, distribution) keeping sales prices low. This paper highlights the close links that exist

## Urban Livestock

between the city and its rural hinterland. A number of interesting case studies are presented from West Africa; Lahore, Pakistan; Montevideo, Uruguay; and Lima, Peru. (WB)

**Smit, Jac (1992). Profit from raising rabbits in the city. Developing Countries Farm Radio Network package no. 26, script 2. 5 p. Developing Countries Farm Radio Network, 40 Dundas Street West, Box 12, Suite 227B, Toronto, Ontario, Canada M5G 2C2**

urban livestock economic impact  
rabbits

A radio script for dissemination in a large number of developing countries, explaining how to raise rabbits in the city. Contains practical information about uses, housing, feeding and breeding. (WB)

**Spiaggi, E.P.; Biasatti, N.R.; Marc ,L.B. (2000) Minilivestock in cities: vermiculture as biotechnology for organic waste processing and its transformation into fertilisers for its use in UA. In: *Urban Agriculture Magazine, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.***

urban livestock wastewater reuse  
Argentina; vermiculture; compost

The issue on the treatment and final disposition of garbage constitutes a challenge to be faced during the next decades in which an answer to the expectations on minimising the environmental impact of human activities will have to be given. The organic separation of garbage at present seems to be the most accessible in the application of compatible practices with environmental criteria on re-utilisation, in different ways. Vermiculture is an answer, because of its high organic waste degradation capacity, while at the same time providing by-products of immediate use and commercialisation. An experience of organic waste re-cycling for red-earthworm production (*Eisenia foetida*) and vermicompost used as fertiliser in family and community farms in Rosario, Argentina is presented.

**Sumberg, James (1996). Livestock production in periurban areas of Africa: an analysis of Dar es Salaam, Mwanza and Shinyanga, Tanzania. 79 p. Overseas Development Group, School of Development Studies, University of East Anglia, Norwich NR4 7TJ, UK**

urban livestock R&D methodology rural-urban linkages  
animal husbandry; periurban livestock production; political aspects; food security

Describes and characterises livestock production in and around urban areas in Tanzania, focusing specifically on dairy, broiler and egg production. Contains a bibliography with nearly 450 references. The enclosed paper critically examines the large number of publications extolling virtues of urban agriculture for urban food security and poverty reduction. The authors stress the importance of rural-urban

linkages in resource and output markets. At the same time, they issue a warning against attaching an exaggerated weight to the contribution of urban farming to food security of the majority of urban dwellers. Very detailed, very sound and very complete. (WB)

**Tegegne A., Tadesse, M., Mekasha, Y. and Yami, A. (2000) Market-oriented Urban and Periurban Dairy Production Systems in Ethiopia. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

urban livestock rural-urban linkages R&D methodology

Ethiopia; farming systems; dairy; markets

The case study was designed to characterise the market-oriented urban and periurban dairy production systems in the Addis Ababa milk shed in Ethiopia. Seven sub-systems identified include traditional crop/livestock farms in rural areas, intensified dairy/crop livestock farms in rural areas, crop/livestock farms with intensive cropping in the Addis Ababa milk shed, specialized dairy farms, periurban producers in secondary towns, intra-urban dairy farms in Addis Ababa and urban dairy producers in secondary towns. It appears that cash income from sales of milk and milk products and/or young stock and breeding animals and utilisation of available resources such as capital, land, labor, etc are the most important reasons for keeping dairy animals. However, as the level of intensification increases, factors such as management skills, labour force, feeding resources and systems, genetic improvement, control of diseases and parasites, udder health and mastitis, calf mortality, reproductive problems, waste management, quality control, processing and marketing and other socio-economic considerations are becoming important in influencing these urban and periurban dairy production systems.

**Thys, E., D. Berkvens, A. Mfoukou-Ntsakala, N. Speybroeck (2001), The Use of Classification and Regression Trees in the Analysis of Socio-Environmental Issues in an Urban Livestock System. Prince Leopold Institute of Tropical Medicine, Department of Tropical Animal Health, Antwerp / Unite de Recherche sur les Systemes de Production Agricole (URSPA), Brazzaville. Paper prepared for the DPU International Conference: Rural-Urban Encounters: Managing the Environment of the Peri-Urban Interface, London 9-10 November 2001**

urban livestock R&D methodology

Congo; management; farming systems; manures; urban areas; livestock, Africa (Central)

The classification and regression tree (CART) is a non-parametric approach to classifying statistical data that can select those variables and their interactions that are most important in determining an outcome or dependent variable. If an outcome is continuous, CART produces regression trees; if the variable is categorical, CART produces classification trees.

This methodology is illustrated with data from a single-visit multiple-object survey, implemented in the 7 urban districts of Brazzaville. Classification trees were built for

## Urban Livestock

2 categorical variables, namely "management system" and "marketing location". Furthermore, regression trees were constructed for the density of small ruminants, a continuous target variable.

The results indicate that the following variables were important in being linked to the management system: most owners with less than 5 small ruminants allow their animals to roam, except if they are traders, whereas owners with more than 5 animals face problems with their neighbourhood when they keep their animals outside and are in need of workforce. Whether the owner is living at the fringes or in the central districts of the town, this has no influence on the management system. The marketing location could not be related to any relevant variable. Finally, the regression tree constructed for the density of small ruminants, shows that this variable is related to manure management: the higher the density, the more the owners are concerned with selling the manure of their animals.

**Touré Fall S., Salam Fall, A., Cisse, Ibrahima (2000) Urban livestock systems in the Niayes zones in Senegal . In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

[urban livestock rural-urban linkages](#)

[urban livestock; production systems; Niayes, Senegal](#)

In association with horticulture, livestock is one of the major activities well implemented in the urban agriculture system of the Niayes zone in Senegal. The area involves the main agricultural cities which generate more than two third of vegetable and fruit productions in Senegal. A low number of different species of domesticated animals live in the Niayes zone. A great diversity is observed in speculations but also huge potentialities that can be exploited in the Niayes. In association with livestock, urban agriculture is well implemented in towns even if multiple constraints make its sustainability questionable. Different types of waste recycling through animal feeding systems and, in feedback, organic matter utilization for improvement of soil status and animal traction are main ways of Livestock and horticulture integration in the system. Institutional constraints are observed that call for actions to improve economical environment.

**Tremante L. P.(2000) Livestock in Nineteenth Century New York City. In: *Urban Agriculture Magazine*, no 2, urban livestock, October 2000, RUAFA, Leusden The Netherlands.**

[urban livestock economic impact](#)

[United States](#)

Commercial agriculture existed in two forms in nineteenth century New York City: livestock husbandry and horticultural productions. Both are similar in that they emerged as viable forms of production soon after the year 1800. Both also depended for their existence on location, the availability of low-cost immigrant labor and urban waste products. Yet by the end of the century, urban livestock production had slipped into decline while urban horticulture continued to thrive. The article discusses the question: "why did commercial livestock production live such a short

life in New York City?".

**Waters-Bayer, Ann (2000) Learning to Live with Livestock in Town. In: *Urban Agriculture Magazine*, no 1, Maiden Issue, July 2000, RUAFA, Leusden The Netherlands.**

urban livestock

livestock

Government services concerned with livestock production for urban populations have given most attention to large-scale livestock rearing in the urban periphery. Small-scale rearing of animals by families living inside the cities is usually ignored and often forbidden. However, such urban livestock keeping is much more widespread than most city authorities would care to admit. In this article (which is an updated version of an article published in 1995) the author discusses the growth in urban livestock keeping in recent years, classifies various types of urban livestock systems, outlines functions of livestock, and indicates some of the problems caused by these systems.

**Waters-Bayer, Ann (1995). Living with livestock in town: urban animal husbandry and human welfare. 9 p. ETC International, PO Box 64, 3830 AB Leusden, The Netherlands**

urban livestock

animal husbandry; livestock; small-scale agriculture; social welfare

Small-scale raising of animals by families inside cities is often ignored or even forbidden. However, urban livestock keeping is more widespread than most city authorities would like to admit. It consists mainly of low-input production of poultry, small ruminants, pigs, rabbits, guinea pigs or milk buffalo or cattle, usually indigenous breeds. With deteriorating economic conditions and rapid urbanisation, small-scale urban farming, including animal husbandry, is being practised by a growing number of families in all income groups in the tropics. An indication of growth trends, a classification of the various types of livestock systems and an outline of the functions of livestock for urban dwellers and for cities as a whole are presented as well as problems associated with urban livestock. Lastly, suggestions for action to improve animal husbandry and human welfare in cities to be taken by government and development agencies are provided. (NB - abstract adapted from original)

**Whitfield, Lin. City farms: livestock in urban communities. In: *Community Development Journal* (volume unknown)**

urban livestock community development

animal husbandry; allotment gardens; community initiatives; United Kingdom

Describes the role of City Farms, community projects centred around farm animals and gardening, situated on areas of derelict land in the centre and on the edges of

## Urban Livestock

towns and cities in the UK. Many different groups of people benefiting from these farms, these farms fulfil an important social role. Many educational activities are organised around these farms. Often, the City Farms offer facilities for allotment gardening with a communal land management approach. Challenge in the organisation of the City farms is to become as self-financing as possible, by employing volunteers and receiving donations. (WB)