

# Small animals for small farms

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FAO Diversification booklet 14



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# Small animals for small farms



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# Preface

The purpose of the FAO Diversification booklets is to raise awareness and provide decision support information about opportunities at farm and local community level to increase the incomes of small-scale farmers.

Each booklet focuses on a farm or non-farm enterprise that can be integrated into small farms to increase incomes and enhance livelihoods. The enterprises profiled in the FAO Diversification booklets selected are suitable for smallholder farmers in terms of resource requirements, additional costs, exposure to risk and complexity. The products or services generated by the enterprises are suitable for meeting demand on a growing, or already strong, local market and are not dependent on an export market. However, in this particular booklet, export markets will be considered. This is because small enterprise development and local markets are influenced by international market demand for furs, hides and skins, and for some specific small animals' meat.

The main target audience for these booklets are people and organizations that provide advisory, business and technical support services to resource-poor small-scale farmers and local communities in low- and middle-income countries. It is hoped that enough information is given to help these support service providers to consider new income-generating opportunities and how these might enable small-scale farmers to take action. What are the potential benefits? What are farmer requirements and constraints? What are critical 'success factors'?

The FAO Diversification booklets are also targeted to policy-makers and programme managers in government and non-governmental organizations. What actions might policy-makers take to create enabling environments for small-scale farmers to diversify into new income-generating activities?

The FAO Diversification booklets are not intended to be technical 'how to do it' guidelines. Readers will need to seek more information or technical

support, so as to provide farmer advisory and support activities relating to the introduction of new income-generating activities. To assist in this respect, each booklet identifies additional sources of information, technical support and website addresses.

A CD has been prepared with a full series of FAO Diversification booklets and relevant FAO technical guides, together with complementary guides on market research, financing, business planning, etc. Copies of the CD are available on request from FAO. FAO Diversification booklets can also be downloaded from the FAO Internet site.

If you find this booklet of value, we would like to hear from you. Tell your colleagues and friends about it. FAO would welcome suggestions about possible changes for enhancing our next edition or regarding relevant topics for other booklets. By sharing your views and ideas with us we can provide better services to you.

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# Introduction

## ■ *Small animals*

The livestock sector is an important source of income and provides improved livelihoods in many countries the world over. The growing demand for products of animal origin resulting from population growth, increased disposable income and lifestyle aspirations, especially in expanding urban areas provides small-scale farmers additional opportunities. Common farm animals are considered to be cattle, sheep, goats and pigs<sup>1</sup>. Most of these so called 'classic'

livestock have traditionally been favoured in development projects. However, in other parts of the world, the major source of animal protein for people derives from 'small animals' or what are commonly referred to as 'microlivestock'. These 'protein sources' are constituted by more than one thousand kinds of rabbits, rodents, reptiles, birds, insects, other small animals (and fish). All these small animal categories are viable enterprises for small-scale farmers and worthy of mention. In this booklet, however, the focus is on creating awareness and promoting rabbits, rodents and reptiles (the '3 Rs') as viable enterprises for small-scale farmers in rural, peri-urban and urban areas (see Box 1).

<sup>1</sup> see FAO Diversification booklet No. 6 *Milk for health and wealth*, FAO Diversification booklet No.

<sup>8</sup> *Higher value addition through hides and skins*, FAO Diversification booklet No. 9 *Sheep and goats for diverse products and profits*, FAO Diversification booklet No. 15 *Pigs for prosperity*

## **BOX 1 Rabbits, Rodents and Reptiles**

### **Rabbits and Rodents**

In addition to the well known rabbit, other mammals – mostly rodents – are suitable as small animals. Rodents include Guinea pigs, giant rats and cane rats (or grasscutters) as well as the capybara, although this is considered by some to be rather large for consideration as a small animal. Many of these small mammals are extremely prolific and highly adaptable. They often thrive on a diet of weedy vegetation and kitchen scraps. Their meat is higher in protein and lower in fat than more conventional meat. Other products such as skins and fur and occasionally manure can also be important for farm use or to sell.

### **Reptiles and Amphibians**

Many larger reptiles including crocodiles and monitor lizards are used for food and other products. In some areas, for example Ethiopia, crocodiles have become accepted as farm animals. Smaller reptiles such as green and black iguanas are more 'user friendly' and provide meat and eggs as well as having valuable skins. Frogs are greatly appreciated as a delicacy in many parts of the developed and developing world.

Some small animal species, including notably the rabbit and Guinea pig, are completely domesticated and raised in recognizable production systems and often in close contact with their owners. Other species, including many small mammals and reptiles, are totally free ranging or only semi-domesticated. Some small animals are only collected in the wild although for many of these attempts at domestication – in order to preserve the wild resource – are being made. If this broad concept of small animals is accepted it is clear that they have been essential to human nutrition for thousands of years. In the future these small animals are certain to be of increasing importance in food security, environmental conservation, animal production and economic diversity.

Small animal production can be an important subsystem where land

is scarce and parts of the community, particularly women and children, lack adequate income and nutrition. Economic niches not available to larger species are occupied by small animals. They are useful for people outside or at the margins of the cash economy because they require very little start-up capital, are a relatively small financial risk, produce rapid returns on investment and allow for a flexible production process. They also provide a steady source of food or income, generate employment, are likely to be successful because they are numerous, are easily transportable and are often efficient converters of feed to protein. Other benefits include the small size of the 'package', efficient use of space, low capital needs for housing (see Figure 1), use of non-conventional feeds, easy management, and provide numerous by-products.



*FIGURE 1 Grasscutters in pen constructed mainly from local materials, Cotonou, Benin*  
(Photo by R. T. Wilson)

Among the many advantages of starting a small animal enterprise are:

- they require little space;
- mostly they do not compete directly with people for food;
- they are usually socially acceptable and have few taboos;
- demand for their products outstrips supply;
- they generally have high reproductive rates;
- veterinary costs are relatively low;
- cash inflow arrives in a short period;
- financial returns are from high to very high;
- housing and other capital costs are low;
- nutritional and supposed medicinal value of products is high; and
- they require little foreign exchange for their operations but can contribute substantially to foreign exchange.

However, the strongest argument for promoting rabbits, rodents and reptiles is that people already make use of them. This recognises their value sufficiently to suggest that more attention should be paid to them at policy level, in research

and development as well as in more geographical areas of the world.

### ■ *Market potential*

Market-oriented small animal production enables farming communities to produce surplus products that can be sold to consumers in rural, peri-urban and urban areas for the benefit of economic growth and the improvement of livelihoods in a rural community. This has the potential to create linkages between poorer rural areas and richer urban areas and contributes to a more equal distribution of the benefits from economic growth.

Almost 50 percent of the world population lives in urban areas. The trend to urbanization is expected to continue or even to accelerate. Apart from the ease of transporting such small animals to urban settings, production can be conveniently situated in urban and peri-urban areas as a result of limited space requirements needed by small animals. Small animals can be raised successfully in peri-urban and in urban centres as in rural and remote areas and production facilities are easily mobile. For example Guinea pigs and their cages can be moved from rural and remote areas into peri-urban and urban kitchen or vegetable or roof gardens easily (see

FAO Diversification booklet No.2  
*Livelihoods grow in gardens*).

Small animals are not difficult to raise and require training that is not overly complicated. Production can easily be carried out by all members of the farm family: women and children as well as sick or disabled members of the farm family. Labour requirements are not excessive and the animals' small size and their confinement requirements mean that production can be located close to the homestead.

Earning a profit involves not only production but also and importantly marketing. One of the main elements in marketing is finding out what consumers need and want. Demand for livestock is growing faster in developing countries than the demand for staple crops. Typically such a rise in demand for animal protein is associated with higher levels of disposable income and more consumer sophistication. This means that consumer demand will focus on quality, regularity of supply and reasonable prices. All these elements can be provided fairly easily with small animals, so long as appropriate production practices are upheld, mainly concerning health and hygiene as well as appropriate and balanced feed.

Marketing also involves transport and most smallholders sell their livestock in the local village market. However, small animal production offers potential sales in urban markets because most of its output can easily be transported, for example by bicycle or on a bus. This clearly represents an opportunity for economic growth. Despite increased demand, however, it is easy to saturate local markets. One possible approach to increasing the market potential is the development of marketing associations which could share transport costs to larger regional markets. Developing a stable relationship with customers -- whether they are individuals, retailers or wholesalers -- is to ensure and guarantee a steady supply of product in order to make a viable business venture for all parties involved.

#### ■ ***Profits for improved livelihoods***

Effective poverty reduction measures can only be successful if the livelihoods of the rural poor can be improved and importantly maintained. Profits and the earning of profits is an essential element of any farm enterprise, including small animals. Small-scale farmers need profits so costs can be covered, fair returns on efforts to produce and

market the farm enterprises can be gained and importantly money can be put aside, in terms of savings, as well as investments can be made in productive assets. Productive assets are assets which have the capacity to generate more income, for example, investing money in new and better housing facilities for rabbits.

Small-scale farmers with small animals may not produce large quantities of meat, but carcass sizes are manageable and the 'harvest' is easy to process and store. Even if smallholders do not fully participate in formal markets and barter their products for other household goods cash is released for other and perhaps essential purchases. Other sources of income accrue from fur from Angora rabbits and chinchilla, rabbit skins, reptile eggs and the speciality skins of reptiles. Improved production techniques and better management can lead to considerably higher yields which could then be marketed more systematically. This in turn leads to a more even cash flow within and across a year which cannot be achieved by the very occasional sale of a 'large' animal. Small animals also contrast many food and cash crops that are harvested and sold only once or twice a year and with which the labour input is unevenly distributed.

Small animal production creates other jobs directly or indirectly linked to production through supplying inputs and services to farmers. Small traders, for example are an important and often a cost effective link between producers and consumers, while also generating income for themselves. Market-oriented development of small animals also creates a market for service providers such as transporters, traders, pharmacies, financial institutions, veterinarians, small shops and agricultural advisory services. Development of input and supply services generates economic activity and has a positive effect on rural livelihoods.

#### ■ *Purpose of the booklet*

This booklet highlights the most important issues in the best use of small animals ( rabbits, rodents and reptiles) in the expectation that development workers and policy-makers will recognize and act upon the numerous opportunities such small animals offer. This would not only result in improved livelihoods for producers but also assist in expanding employment and income opportunities in general. The booklet focuses on important aspects of this business.

In summary the aim of this booklet is threefold and is to:

- highlight the benefits of keeping small animals for small-scale farmers and the many opportunities they offer, not only

in terms of income;

- identify the key inputs into smallholder livestock systems to improve productivity; and
- identify the range of support services required and the challenges of service provision.

# Benefits of small animals

## ■ *Small animals at household level*

A well managed integrated production system comprising several diverse enterprises including small animal production adds considerable value to a farm household. There are synergistic benefits to integrated and associated farming systems. In addition there are several non-marketed benefits in relation to the function of animals as security and savings and as a means of financing sudden or periodic expenditure such as payment for medical expenses or school fees.

Small animals add to food security, improve human health through a more varied diet, generate a steady cash flow that increases household income, have an important role in poverty alleviation, contribute to the empowerment of women and children as well as the sick and the disabled and other marginalized groups, make productive use of labour and valorise local feedstuffs and feedstuffs not normally suitable for direct consumption by people.

### **CASE STUDY 1 Guinea pigs and livelihoods in Bolivia**

In the forest margins of the tropical Bolivian provinces of Sara and Ichilo, some 100 km north-west of the city of Santa Cruz, farmers keep small animal species on their farms, generally to contribute to food security, although, in times of need, production not needed for home consumption, is sold. Under traditional management, poultry commonly scavenge around homesteads for the bulk of their feed, receiving only occasional supplements of household scraps and cracked grain. Pigs also scavenge, while receiving occasional offerings of chopped cassava, while sheep graze and browse along roadsides and in fallow-lands. They receive no vaccinations or veterinary treatment and find their own shelter where they can.

Although they receive no veterinary care, guinea pigs are the exception, since they are usually kept in sheds, or in the family kitchen, where they are fed freshly-cut forage, often of kudzu (*Pueraria phaseoloides*). Monitoring showed that the productivity of chickens and ducks was reduced by the attacks of a range of controllable diseases and natural predators, while losses from pigs and sheep were as a result of accidents and internal parasites. Guinea pigs had few identifiable problems, with low levels of losses, restricted almost entirely to theft and accidents, often involving dogs belonging to neighbouring families.



## CASE STUDY 1 Guinea pigs and livelihoods in Bolivia (Cont.)

As a result of the use of almost zero inputs, apart from the labour of women and children, the return from small animal species can represent up to 30 percent of annual family income, when home consumption is costed at the prevailing, local market prices.

*Source: Adapted from Paterson, R.T. & Rojas, F. 2004. Small animal species in the livelihoods of small-scale farmers in Tropical Bolivia, In E. Owen, T. Smith, M.A. Steele, S. Anderson, A.J. Duncan, M. Herrero, J.D. Leaver, C.K. Reynolds, J.I. Richards & J.C. Ku-Vera (Eds.) Responding to the Livestock Revolution: the role of globalisation and implications for poverty alleviation, BSAS Publication 33, Nottingham University Press, Nottingham, United Kingdom, pp.117-132*

### ■ *Small animals and the farming system*

Small animals are an important pathway of diversification and intensification in a wide variety of farming systems. Small animal production is a form of intensive agriculture. Large volumes of produce can be obtained from very small areas of land if the animals are provided with adequate water and food, and pests and diseases are controlled. They ensure better uses of the means of production including land, labour and capital. They can make excellent use of farm and industrial by-products.

Many kinds of small animals are best used locally in their native environment. Before attempting to introduce a new species or breed careful research should be undertaken. This should be designed to ensure that the animal to be introduced is not only adapted

to local conditions but also that it will not become an invasive pest.

Environmental damage purportedly attributed to farming of conventional livestock has been well documented and perhaps overexposed. Small animals can, however, occupy niches that large animals cannot. Green iguanas, for example, have long been an important food source for eggs and meat in Central America, have been (and are increasingly being) semi-domesticated and can therefore occupy both wild and farm environments (see Figure 2). Rabbits, rodents and reptiles can enhance total farm yields and supply diversified products in a way that is compatible with many situations and in many farming systems. They can be highly productive in environments that are unsuitable for other kinds of animals: these include steep





**FIGURE 2** *Green iguanas on a farm in Costa Rica*  
(Photo by R. T. Wilson)

hillsides, highly degraded areas and urban localities. In some parts of the tropics large livestock may be totally unsuitable whereas local species of small animals may thrive. The use of locally adapted small animals reduces the pressure to alter the environment dramatically in order to accommodate conventional livestock production.

The development of small animal farming – one of whose principal objectives is to progressively abandon the uncontrolled harvest of these species and thus to prevent their extinction in the wild – requires

a paradigm shift whatever species may be considered. Veterinarians, agronomists and animal production specialists trained along traditional lines need to modify their conceptions and attitudes and donor agencies should give further consideration to providing support for small animals as more and more technical and scientific knowledge and expertise are available in this animal production subsector.

#### ■ **Health and nutrition**

Meat produced by small animals has a positive effect on family nutrition