

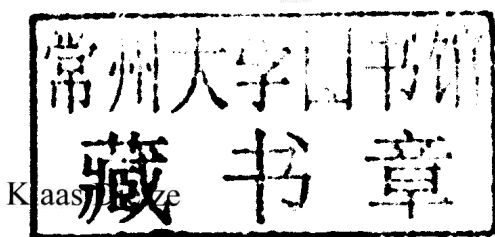
Pigs for prosperity

FAO Diversification booklet 15



Diversification booklet number 15

Pigs for Prosperity



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Introduction

Small and medium sized livestock like poultry, sheep, goats, and in particular pigs are a viable and profitable enterprise that can be easily adopted and adapted by small-scale farmers. Pigs require little initial investment; they are prolific and are good feed to meat converters compared to other livestock such as cattle. Pigs produce meat (pork) without contributing to the degradation of grazing lands and pork is particularly suitable for processing. Further pork provides a more varied diet for the farm family and pigs are one of the few livestock animals where nearly all parts of the animal can be consumed by the farm family and/or sold.

Pig products range from primary commodities such as pork, to processed food products such as sausages and smoked hams to cooked salted ears, eaten as snack foods. Different pig breeds have been adapted to the most diverse climatic conditions with a good degree of success.

Production systems vary widely throughout the world, ranging from labour intensive systems to capital intensive systems. Small-scale farmers new to pig enterprises advisably commence the activity with a focus on adequate pig confinement using simple housing structures and prevalently local feed resources.



FIGURE 1 Pigs in a confined production system in the Philippines

(Photo by J. Mounsey)

Practical extension and training enables farmers to raise pigs successfully and to apply simple processing techniques to produce various pork products. This increases the value of the commodity and enables small-scale farmers to sell pig products over and above slaughter time.

Pigs are easily integrated into small-scale farming systems and can be fed with by-products from crops that cannot be consumed or used more efficiently by small-scale farmers. Their manure can be used as fertilizer as well as for energy production systems. Apart from regions with cultural and religious reservations towards pork, pigs are potentially a viable, valuable and important diversification enterprise.

■ *Pigs and livelihoods*

A pig enterprise contributes in many ways to improve the livelihood of poor and vulnerable small-scale farmers. Pork and other pig products provide for high value animal protein, the meat is easy to dress and has superior curing and storage qualities. Additional income is earned from the sale of animals and importantly from their products. This additional income can be used to invest in farm assets, pay for school fees and medical treatments.

Pigs provide income for women, strengthening their role in families as well as in local communities. The sick and disabled can participate in pig raising as it does not require excessive labour and is not too complex in its management. The low start-up costs and small investments required for buildings and equipment are recovered fairly quickly as slaughter can take place at about six to eight months from farrowing (birth), pending on breed and feed availability. Pigs additionally can be considered as a store of wealth and a safety net in times of crisis.

The pig, depending on feed and other management aspects, commonly grows rapidly to slaughter age and has a high reproductive rate compared to ruminants, making it a low risk investment with quick returns. Additionally, pig husbandry can be easily integrated with a series of other farming activities within the agricultural and aquaculture sectors (see FAO Diversification Booklet No.13 *Farm ponds for water, fish and livelihoods*). Pig production is a form of livestock keeping that does not necessarily require access to agricultural land and has therefore gained importance in the growing sector of peri-urban and urban small-scale livestock keeping. All these

advantages make the livelihood activity of pig production a valuable diversification option in small-scale production systems, comparable to some degree to small-scale poultry,

sheep and goat production (see FAO Diversification Booklets No.3 *Products and profit from poultry* and No.9 *Sheep and goats for diverse products and profits*).

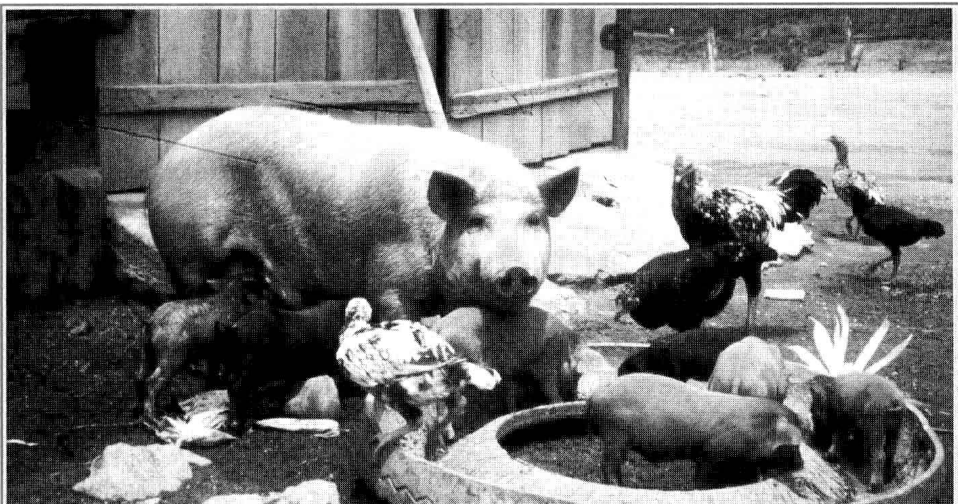


FIGURE 2 Pigs and poultry on a farm in Brazil
(Photo: FAO/19281)

CASE STUDY 1 The role of pigs in Lao People's Democratic Republic, Cambodia, Viet Nam and the Philippines

Farmers recognize the importance of pig enterprises as a major source of family income, as a supplementary source of funds for particular purposes, for example to finance children's schooling, to use during the celebration of cultural events, or to pay off a debt, or as a 'savings bank'. In Southeast Asia, pig production has three important functions, namely: (1) the diversification of resources and the reduction of socio-economic risks, (2) the promotion of linkages between systems and resource components (land, water, crops, and animals), and (3) the generation of value added products, for example the recycling of fibrous crop residues to produce meat, and the use of manure.

Source: Adapted from Huynh, T.T.T., et al. 2006. Pig production in Cambodia, Laos, Philippines, and Vietnam: A review, *Asian Journal of Agriculture and Development*, Vol.3, Nos.1 & 2

CASE STUDY 2 Keeping pigs improves livelihoods in the Northeastern region of India

The Northeastern region of India is characterized by a high proportion of tribal people. For these people pig keeping is an integral way of life; over a quarter of all India's pigs are found in the Northeastern region. Assam is the major state in the region, with a population of 27 million and the biggest pig herd of over 1.5 million. The demand for animal-based food sources is increasing in the Northeastern region as well as in India in general. Pig production in Assam is invariably a small-scale, backyard, marketed-oriented enterprise. It is practised mainly by small-scale farmers to generate income, accumulate capital and fulfil socio-cultural obligations. It is a low-external input enterprise dependant on family labour, mainly women, and on other local inputs, particularly feed, that have no or low opportunity costs. Traditional management practices continue to dominate production with two exceptions: scavenging systems have given way to tethering or penning and most indigenous pigs have been replaced by crossbreeds.

Despite being small-scale (generally no more than one to five crossbred pigs), production contributes significantly to the livelihood of the majority of pig-rearing households. The income from pig sales meets essential household and farming expenses, and provides some financial independence for women.

Traders and retailers reported that demand for slaughter pigs and fresh pork had increased significantly over the last five years causing a 20 percent increase in the price of pork in real terms. In addition, pork traders and retailers are confident that sales of fresh pork would continue to grow as a result of the continuing rise in demand. These changes resulted not only in more pigs being produced from the hundreds of thousands of small-scale farms, with evident benefits to livelihoods, but also to the many more people earning a living from the marketing of pigs, piglets and pork.

There are also indications that pig production is gaining a foothold as a source of income generation in communities that do not have a tradition for rearing pigs.

Source: Adapted from Deka, R., Thrope, W., Lucila Lapar, M. & Kumar, A. 2007. Assam's pig sub-sector: current status, constraints and opportunities, ILRI, New Dehli

The productivity of pigs is determined by the breed and overall husbandry management. Well managed breeding sows (a female pig) of improved breeds will farrow (give birth) twice a year and provide approximately 10 piglets per litter or

20 piglets/year. Weaned piglets can be sold for income generation and/or fattening can be performed on farm, allowing the farmer the option to choose the time of slaughter/selling, for example, when prices are favourable.



FIGURE 3 *Piglets suckling a sow*
(Photo: FAO/22667/J. Spaul)

Purpose of the booklet

The purpose of this booklet is to highlight the many opportunities and benefits that pigs can provide to small-scale farmers, reducing their vulnerability and increasing their food and income security as well

as providing a high value animal protein for more balanced diets. The booklet is focused on creating awareness and promoting pigs as a viable diversification enterprise within the context of small-scale farming.

Benefits of pigs

■ Pig products

Each pig provides for numerous products and on-farm processing can provide for a wide range of products. The main commodity of pig production is pork. Pork represents high value animal protein and is the most consumed meat in the world. As a result of the great variability between pig breeds, carcasses have differing characteristics ranging from high lean meat percentages (as desired in many Western societies)

to high intramuscular fat and back fat contents (as often appreciated in more traditional societies).

Slaughtered pork that is not destined for immediate marketing, processing and consumption requires a functioning cold chain to avert product spoilage.

Besides traditional meat cuts found locally, many other pig products find their way into the food chain. These include pig fat, brain, feet, ears, blood and organs



FIGURE 4 Pork on sale in a market in Hanoi, Viet Nam

(Photo by O. Argenti)

(for example, liver and stomach). Commonly other pig by-products are used for many and various purposes. For example, intestines for sausage casings, bone collagen is used in the food processing and cosmetic industry, hairs are used for brushes, etc.

Pork processing can lead to a great variety of products meeting the demand of specific consumption patterns. The number of processed products can be extensive, ranging from simple salted and sun dried pork, to cured sausages to smoked ham. Mainstream processed pork products are commonly accompanied by some

local specialties that may include more traditional recipes and herbs or spices (see FAO Diversification booklet No. 20 *Spices and herbs for home and market*). Pork can be processed on-farm provided that appropriate training has been given, especially in terms of food hygiene and safety.

■ ***Pigs at household level***

At household level pig production provides access to animal protein for farm families, contributing to an improved diet for family members. Pork with its beneficial components like essential amino acids, vitamins and iron, facilitates a balanced



FIGURE 5 *Pork products: cured sausages*
(Photo by P. Hautzinger)

CASE STUDY 3 Pigs at household level in Kaduna State, Nigeria

Pig enterprises are commonly used for food for the family as pigs grow at a fast rate and are prolific. They provide a good source of animal protein representing one of the fastest ways of increasing animal protein consumption in households in Kaduna State. Pigs can be considered as potential protein deficit gap-fillers.

Pigs are importantly also raised as a source of additional income and investment in case of hard times. The additional income is especially important for women. Incomes derived from the sale of pigs are usually spent on the acquisition of household goods and in meeting social and cultural obligations.

Source: Adapted from Ajala, M.K., Adesehinwa, A.O.K. & Mohammed, A.K. 2007. Characteristics of smallholder pig production in Southern Kaduna area of Kaduna State, Nigeria, American-Eurasian Journal of Agriculture and Environmental Science, 2, pp. 182-188

nutrition which is especially important for young children in food insecure regions. On-farm processing of pork can produce products with improved storage characteristics, enabling meat consumption throughout the year regardless of when slaughter occurs.

In many societies women are traditionally responsible for raising, feeding and caring for animals. Commonly when pigs are sold, men get involved, often curtailing women's access to income. The development of a smallholder pig sector thus needs to consider gender issues and this can be supported by extension services and appropriate training. Pigs can contribute positively to the empowerment of women and enhance their equal participation in local markets. It

can give women a better say in family matters, allow for their own income to be earned and in case of widowhood or abandonment can provide a safety net. It can also give women a greater role in their local communities. Activities in small-scale pig production often require additional labour. Family members participate in the enterprise and this provides more employment opportunities for the farm family.

The level of technical skills and physical strength needed to succeed in small-scale production are minimal and routines required can easily be understood. Tasks can be split among all family members including people suffering from disabilities or suffering from illnesses such as HIV/AIDS. Pig management does not commonly involve excessive labour.

On-farm processing enables new skills and knowledge to be learnt and provides for more varied products to be sold and further employment opportunities for the farm family. Women that are involved in the raising of pigs can also get involved in processing of pork giving them yet another source of income deriving from pig enterprises. Kitchen processing is easy to set up, has very few start-up costs and can be a first step towards a more formalized operation where appropriate equipment is bought and a room in the farm household or a small building on the farm is devoted to processing operations. However before any such progress is made there has to be a corresponding market demand and importantly sales to make such investments feasible.

In poor rural but also peri-urban areas, pig production often functions as a banking system where the animal is a source of wealth that can be accessed when additional income is needed. This might be the case when school fees need to be paid, household members seek medical assistance or cash is needed for further investments. In this regard, pigs represent an attractive intermediate between poultry production (see FAO Diversification Booklet No 3 *Products and profit from poultry*), which can be initiated with very little money and the more long term oriented cattle production option requiring far higher cash outlays (see FAO Diversification Booklet No 6 *Milk for health and wealth*).



FIGURE 6 A woman feeding her pigs in Myanmar
(Photo: FAO/19759/ G. Bizzarri)

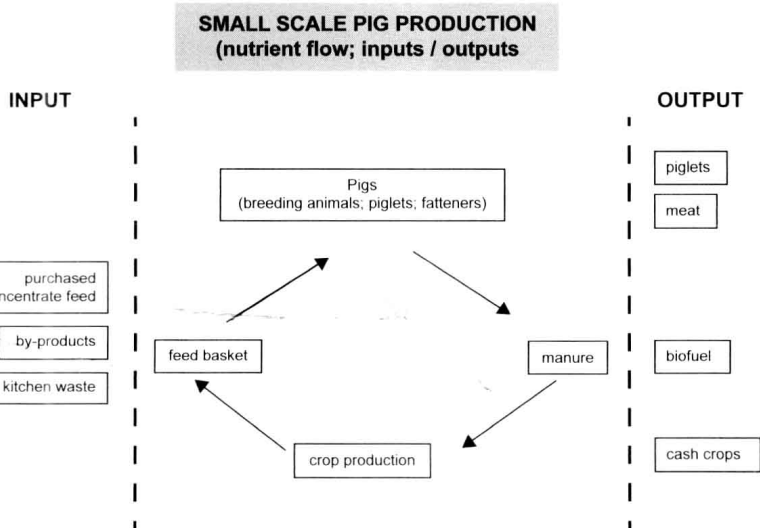


FIGURE 7 Small-scale pig production: an overview of inputs / outputs and nutrient flow

■ Pigs and the farming system

A small pig enterprise relying on little or no external inputs fits well in to a small-scale farming system. Basic forms of production are easy to incorporate into existing farming activities; they do not require large investments or technical skills that would make the initial hurdle too high to overcome as a result of limited access to financial and natural resources by small-scale farmers.

Introducing pigs to a farming system can be beneficial for a series of agricultural activities. Pigs produce meat without interfering with grazing lands. The animals can feed off by-products from cash crop production or kitchen leftovers and therefore add value

to nutrients that would otherwise have been lost to the farming system. Pigs can roam on crop fields after harvest and while searching for food they loosen soil structures without disrupting them.

Their manure is a valuable fertilizer that can contribute to increased agricultural productivity and/or it can be used as a source of fuel when processed in a bio-digester. Methane production from pig manure collected in small-scale pig holdings can be sufficient to cover the demand for household cooking stoves and therefore reduce the dependency on external energy sources like wood or fossil fuels (see Figure 8). Incorporated in aquaculture systems, their manure can fertilize ponds which in turn feed fish – a common practice