

Micro-livestock for livelihoods

A new outlook for the North Eastern Hilly states of India

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One of the great challenges currently posing us is how to feed an estimated 9 billion people by the year 2050 world-wide, 40% more than presently inhabit the planet, even more formidable is the challenge to achieve this without damaging the environment. India has currently a population of 1.33 billion which is expected to reach 1.65 billion by 2050 and by 2050, we are expected to surpass China in terms of number of stomach to feed. As human population increase, the space available for growing forage decreases and this phenomena favours small animals. Many villages of the Northeast States already have little or no pastureland, some live in areas where crops are grown. Moreover, small animals offer a way to improve the lives of people who are hard to reach by other methods. Micro-livestock production should be integrated into most rural development projects. Policymaker should note the potentials of micro-livestock and the benefits that can be derived from them.

Keywords: Livelihood, Micro livestock, Northeast India

Micro-livestock

Micro-livestock is a term coined for species that are inherently small as well as for breeds of cattle, sheep goat pigs that are less than about half the size of the most common breeds. These miniature animals are seldom considered in the broad picture of livestock development but they seem to have a promising future especially wherever land is scarce.

Micro-livestock roles in wellbeing of rural communities

The total Livestock population is 535.78 million in the country showing an increase of 4.6% over Livestock Census 2012. As compare to previous census the percentage share of sheep and goat population has increased whereas the percentage share of cattle, buffalo and pig has marginally declined. Fulfilling the feed demand for this huge livestock from same resource base of land and water is going to be a huge challenge (NIANP, 2013).

Reduced spoilage

A family can eat the meat produced by most livestock in one meal or in one day to minimize the risk of spoilage. Micro-livestock is important in the areas of Northeast (NE) States, where refrigerator is unavailable or uneconomic.

Efficient use of space

The space required for handling and feeding micro-livestock is proportionately less than that required for large animal. Low space requirement make many micro-livestock (such as quail, indigenous breed of pigs) available to the landless rural inhabitants who have no room for a cow.

Cheaper facilities

Facilities and equipment required for housing of micro-livestock is simpler than those required for large animals. Small livestock are cheaper and they give faster turnover on investment. But the fact remains that not everyone who wants meat or

money has the resources to acquire, keep manage or utilize a large animal.

Ease of management

Farmers and villagers can manage small animals more easily which is an advantage in many places where women and children are the main keepers of the livestock.

Micro-livestock in smallholder farming system

Under conditions of abundance, small size may be of no advantage in mammals, but if feed is limited, it is of great help. A small animal needs to cover small area to fulfill its daily requirements. So that micro-livestock may grow fat in areas where forage is too sparse to support a larger animal. This is particularly vital when there are seasonal bottlenecks. For example, food may be plentiful enough for most of the year to supply many large animal, however the dry season may greatly restrict the numbers that can be kept. The number of large animal that can be kept on a given parcel of

land may be increased, sometimes even doubled, with smaller animals. Microlivestock can also be penned and fed cut and carry forage more easily than can larger animal and more of them can be maintained on the same amount of feed. This permits more continuous production and less financial hardship when an animal perishes.

Micro-cattle

Most of the breeds of cattle are too large to be considered micro-cattle, but there are some whose mature weight is less than 300 kg. They are often treasured because of their resilience and simple requirements. Many of them survive and produce under harsh conditions, grow rapidly, calve easily, show good mothering ability and yield lean meat. As the rural people depend more upon cash economics, micro-cattle could become vital means for improving personal, dietary and economic status.

Status and uses of micro-cattle

Micro-cattle are threatened with extinction because of replacement or crossbreeding with larger types. This is in some respects shortsighted because promoting just a few breeds contributes to narrowing of the genetic base and valuable traits may be lost when selection is done to conform to any preconceived standard including large size. Like conventional breeds, micro-cattle produce the same well-known products meat, milk, manure, hides and bone. Small cattle often produce only modest amounts of milk and meat per animal. However, given higher stocking rates, a herd of micro-cattle is often able to outyield larger, genetically improved animals on a per hectare basis, especially under stressful condition. When their ability to survive adversity and poor management is taken into account, they may often be far and away the most efficient cattle for traditional husbandry.

Micro-goats

Micro-goats are noted for their high reproductive rates, rapid growth, early maturity, tasty meat as

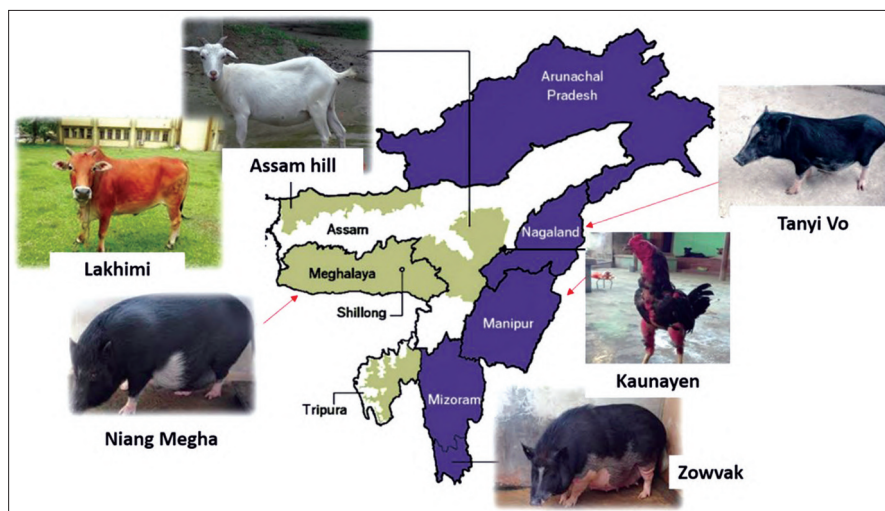


Fig. 1. Micro-livestock of NE States of India

Table 1. Performance of Micro-livestock of NE states

Parameters	Niang megha	Doom	Assam Hill
Adult Body Wt.	39.35±0.17 (kg)	49.97±0.9 (kg)	15-26 (kg)
Age at puberty	210±2.42 (days)	-	264±1.68 (days)
Age at 1 st service	10.96±1.09 (month)	-	-
Age at farrowing/kidding	14.76±0.32 (month)	-	441±2.28 (days)
Gestation period	111.84±0.136 (days)	112.04±0.24 (days)	148±0.37 (days)
Avg. litter size	6.5	6.2	1.6

well as for their robust constitution. Too many people especially where pigs and poultry are not common meat and milk from micro-goats are the primary animal proteins consumed during a lifetime. Perhaps the world's best forages, goats eat practically anything made of cellulose and are not dependent on grass. Because of their unselective feeding behavior they are capable of living where the feeds tree leaves, shrubs and weeds are too poor to support other types of livestock. Such micro-goats deserve wider recognition for they are often the poor person's only source of milk, meat and cash income.

Micro-pigs

Micro-pigs are considered to be small breeds of pigs with a mature body weight of about 70kg or less. These micro-pigs are particularly common in NE parts of India. Smallness makes for nimble and self-sufficient pigs in contrast to large, lethargic breeds. Small breeds are easier to maintain and the sows are less likely to crush newborn piglets, often a major cause of mortality in large breeds. Pigs are reared on kitchens, farms and food industries as

well as other foods such as small roots or bitter fruits that are not consumed by humans or ruminants. For these reasons, micro-pigs could become useful household and village livestock in the NE States and they deserve greater attention than they now receive. Although their growth may not be as rapid as that of improved breeds raised under intensive commercial production, with modest care and minimum investment, backyard micro-pigs can provide sizable yields of meat and other products.

Quail

Quail are so precocious that they can lay eggs when they are 5 weeks old. It is said that about 20 of them are sufficient to keep an average family in eggs year round. Adult quail can live and produce successfully if they are allowed 80 × 2 cm of floor space per bird. However, for reproduction about twice that is needed to allow for mating rituals. If properly mated, high fertility rate and good hatchability can be expected. To obtain fertile eggs, one male is needed for roughly six females. Moreover, the flavor of farm raised quail has also helped bring them into

the main stream. And at a time when people are searching for foods, specifically animal protein with low fat and cholesterol, quails fills the gap. Quail production can be started with little money. These easy care birds can be housed in small, single inexpensive cages.

Future of Micro-livestock

The question is not whether the large or small animal is best but rather how well each can meet a person's varying requirements. In a given situation livestock can be too large or small but the fact remains that not everyone who wants meat or

money has the resources to acquire keep manage or utilize a large animal. Micro-livestock increase the range of options for the millions of poor people for whom the choice may not even be between large and small livestock, but between micro-livestock and no livestock at all.

CONCLUSION

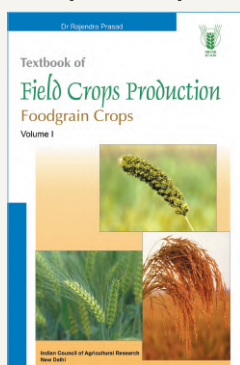
The challenge is how to increase the food supply, particularly food of animal origin, in light of increasing global demand from predominantly urban populations with increased purchasing capacity. Though, livestock population is increasing day

by day but adequate feed would not be available at reasonable price to rear them under traditional animal husbandry. Therefore, improvements in micro-livestock production can meet the nutritional demand in the household and increase their livelihood security by increasing their social standing and financial autonomy.

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Textbook of Field Crops Production – Foodgrain Crops

(Volume I)



The first edition of Textbook of Field Crops Production was published in 2002 and there has been a heavy demand for the book. This book is now being brought out in two volumes. The chapters cover emerging trends in crop production such as System of Rice Intensification (SRI), export quality assurance in the production technology of commodities like Basmati rice, organic farming, resource conservation technologies, herbicide management etc. Good agronomic practices must judiciously inter-mix the applications of soil and plant sciences to produce food, feed, fuel, fibre, and of late nutraceuticals while ensuring sustainability of the system in as much possible environment and eco-friendly manner. The advent of hydroponics, precision farming, bio-sensors, fertigation, landscaping, application of ICT, GPS and GIS tools, micro-irrigation etc. is in the horizon. The textbook covers both the fundamentals of the subject and at the same time inspire and prepare both teachers and students for the emerging frontiers.

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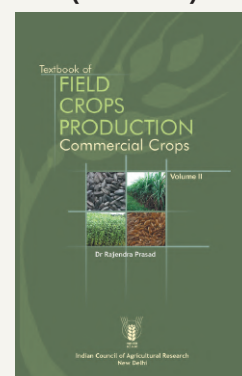
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The discipline of Agronomy has no longer remained mere field trials without application of discoveries emanating from the related disciplines of Genetics, Soil Science and Agricultural Chemistry, Plant Biochemistry, etc. The future Agronomy Landscape will face challenges of climate change, transboundary issues, TRIPS and other trade-related barriers, biotic and abiotic stresses, consequences of biotechnology and genetic engineering and increased market demands in terms of quality assurance, customized food crops, global competition, ecosystem services on land and social equities etc. The Agronomy must measure up to these futuristic challenges with well-defined metrics and methodologies for performance. The advent of hydroponics, precision farming, bio-sensors, fertigation, landscaping, application of ICT, GPS and GIS tools and micro-irrigation is in the horizon. This revised edition in two volumes covers fundamentals of the subject and at the same time will inspire and prepare teachers and students for the emerging frontiers.

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