

Goat Farming in Coconut Gardens – A Pivot of Confidence for Rural Unemployed during COVID era

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Today, the world is suffering an extra-ordinary looming panic of the deadly viral pandemic and is at cross-roads to move ahead sustainably. The corona viral pandemic in India has been largely disruptive affecting all walks of life, encompassing Agriculture, Energy, Employment and Economy. A vast majority of the world's poor live in rural areas and agriculture remains the prominent source of livelihood for 86 per cent of them. Their livelihood is characterized by small holdings or landlessness, illiteracy, unemployment and malnutrition. As per the report of the Centre for Monitoring of Indian Economy, the unemployment rate had shot upto 26 % across India and many rural households suffered an income dip during April 2020. Food and Agriculture Organization of the United Nations underlines that rural youth are 40 per cent more likely to be in casual work than their urban counterpart

and many earn their income only on a daily or weekly basis, with little access to social security. Small scale enterprises in the rural regions are highly vulnerable to the fluctuations in supply-chain together with depression of demand, leaving ripple effects on their households. Thus encouraging agrobased ventures in the rural areas is the way out to revive the rural economy from financial crunch and from emotional setbacks.

Coconut Farming – A Determinant of Rural Economy

Coconut plantations turned out to be a sensitive victim to receive the catastrophes of the impacts of COVID scenario. Coconut plantations hold great promise on the rural economy of many countries across the globe. It provides livelihood security to 64



million farm families and 12 million Indians accrue direct / indirect benefits from coconut industry. In India, coconut is a crop of small and marginal farmers, spreading over an area of 2.15 million hectares yielding a production of 21,288 million nuts (Source: Horticulture Division, Department of Agriculture and Co-Operation, Ministry of Agriculture and Farmers' Welfare, Government of India). More than 98 % of the coconut holdings in the country is less than 2.0 ha in size and more than 90 % of them are lesser than 1.0 ha. Export earnings derived from coconut is around Rs.3000 million and is mainly vested with the export of coir and coir goods. Processing and associated activities generate employment opportunities to nearly three million people in India. Coconut farming, providing a platform for the production of array of kernel based, shell based, inflorescence based and coconut wood based products offer excellent prop up to the rural economy.



Glyricidia plants along the borders of coconut garden



Monkey Pod Tree

Goat Rearing – A Profitable Venture

Ever fluctuating price chart of copra together with resurgence of pests and diseases draws roadmap for the farming community to integrate animal component in coconut plantation. Integrated Farming System in coconut is economically rewarding, ecologically sustainable and emotionally complacent for the rural farmers. Crop and animal enterprise are the two major segments of the Integrated Farming System.

Crop component

Coconut palms especially tall palms with a spacing of (7.5 x 7.5) m² to accommodate fodder crops is the pre requisite of Integrated Farming System. Fodder crops should not compete with the main crop for natural resource and for foraging nutrients. They should possess the ability to withstand shade and should respond to fertilizer application to a great deal.





1. Telicherry breed
2. Jamunapari breed
3. Barbari breed
4. Kanni Aadu
5. Osmanapadi
6. Black Bengal
7. Boer Goat

Fodder crops should be relished by cattle. Commonly employed fodder crops in coconut ecosystem include graminaceous fodders like guinea grass, Cumbu napier hybrid and leguminous fodder crops viz., Desmanthus, Subabul and Stylosanthes. Glyricidia, Moringa, Kadamba, Sesbania, Cotton candy berry and Indian Tulip tree can also be accommodated along the borders. Goats have special preference towards monkey pods (*Pethecellobium dulce*), which can be raised in the field borders without offering hindrance to coconut.

Animal Component

Goat is often celebrated as “Poor man’s cow” or “Moveable Wealth” and is highly suitable for semi-intensive and extensive systems of management. Although an array of goat breeds is available, Jamunapari, Beetal, Barbari, Telicherry, Kanni Aadu, Kodi Aadu, Boer goat and Osamanapadi are commonly employed for rearing. The characteristic features of the common breeds are furnished below. Depending upon the local situation, economy, fodder availability and purpose, the goats can be selected for rearing.

Characteristic features of Common Indian Goat Breeds

1. Telicherry breed

Also called “Malabari goat” is the well recognized breed of Kerala and Tamil Nadu. Mainly reared for meat and milk. This is medium in size with colours ranging from black, white and brown. Known for exhibiting multiple birth rate compared to other breeds of South India. An adult female (10 - 12 months old) weighs from 30 to 40 kgs whilst an adult male between 40 and 50 kgs. Female goats (Does) can give birth to three to four kids per year and the milk yield is one to two litres per day.

2. Jamunapari breed

“Jamunapari” breed is mainly found in Uttar Pradesh and takes its name from the river Yamuna. Skin colour is white with patches of tan on the neck and head. They have a convex nose imparting parrot like appearance. Long drooping ears is the special feature of this breed, with beard and horns in both the sexes. They are the elegant and long legged goats of India. An adult female weighs between 45 to 60 kgs and an that of an adult male ranges from 65 to 80 kgs. Meat is reported to be low in cholesterol. Milk yield is around 2 litres per day and the average age of first conception of this breed is 18 months.

3. Barbari breed

Barbari goat is mainly found in the states of Haryana, Punjab and Uttar Pradesh. It derives its name from Berbera, located on the Indian Ocean.



Goats are multi purpose, versatile animals which produce milk, meat, fiber and skin together, which can be reared easily with less space, less demand of housing and other management with relatively low initial investment.

It is a medium sized animal with compact body. It is a seasonal breeder and is employed in intensive farming, bred mainly for milk and meat. The milk yield is approximately 107 litres in a lactation of about 150 days. Colour of this breed is white with light brown patches. Weight of adult female goat varies from 25 to 35 kgs while that of adult male goat from 35 to 45 kgs. Average milk yield ranges from 1.5 to 2.0 litres per day.

4. Kanni Aadu

These goats are mostly found in Tirunelveli and Ramnad districts of Tamil Nadu. They are characterised by black or white spots over a dark tanned skin. The weight of adult female ranges from 25 – 30 kgs and that of adult male from 35 – 40 kgs. It gives birth to 2 to 3 kids per delivery. They have the ability to adapt themselves to drought conditions.

5. Osmanapadi

Osmanapadi goat is known for its high kidding ability, disease resistance and adaptability to diverse rearing systems. Goat is predominantly black, white and brown with spots. Average birth weight is 2.4 kgs. It gives kids once a year. Average age at first kidding is 19 – 20 months. Good quality meat is the characteristic of this goat. Average milk yield is 170 – 180 litres per lactation.

6. Black Bengal

Black Bengal is a Bangladeshi, dwarf meat-type, highly prolific breed of goat. They breed round the year and have resistance to a wide array of diseases. Average live weight of buck is 15 kgs and doe is 12 kgs. It is most prolific among the Indian breeds. Average age at first delivery is 9-10 months. Length of the lactation period is 90 to 120 days. Reports reveal that birth weight, growth rate and milk yield of these goats is low in the order of 800 – 900 g, 40 – 45 g per day and 400 – 700 ml per day.

7. Boer Goat

Boer goat is a South African breed but suitable for farming in India. Boer goat has a fast growth rate with excellent carcass qualities, making it one of the most popular breeds of meat goat in the world. They have white bodies and brown heads. Boer goats have high resistance to diseases and adapt to hot, dry semi deserts. An adult male goat weighs about 110-115 kgs and a female goat weighs about 90-100 kgs.

• Ventilation

Shed should be well aerated and ventilated to maintain goats in a hygienic atmosphere. It is also essential for maintaining the temperature for air flow. Slatted Goat Shed is recently gaining momentum because goats enjoy a very salubrious atmosphere in the shed, as urine and faecal pellets are drained down, paving way for their better breeding ability. Added advantage of this shed is the presence of compartments which helps isolate the sick, weak and pregnant goats. Goat shed can be disinfected with 3- 4 % KMnO₄ solution at fortnightly intervals to prevent the spread of diseases.

• Orientation

To facilitate intrusion of solar radiation, East–West orientation of goat shed is considered as the best. Elevated goat shed offers protection for goats from damp conditions, crawlers and reptiles. Shed should be 20 feet wide of any convenient length.

• Feeding

Goats respond very well to well balanced and nutritious feed. For successful growth and reproduction, it requires 12-18 % protein. A perfect blend of proteinaceous and non-proteinaceous feed and fodder facilitates the goats in weight gain, disease resistance and in parturition.



Prospects of Goat Farming

- Goats are multi purpose, versatile animals which produce milk, meat, fiber and skin together, which can be reared easily with less space, less demand of housing and other management with relatively low initial investment.

- Production costs like infrastructure, feeding and treatment are less.

- Goats can adapt themselves to diverse agro-climatic conditions and to changing weather scenario.

- Goats are prolific breeders and achieve sexual maturity at the age of 10-12 months. Gestation period of goats is short and at the age of 16-17 months they start yielding milk.

- Diseases are less common in goats and does not require expensive veterinary aid.

- Goat products have wide acceptance throughout the world without any social taboos.

Economics of Goat Farming (Per year for a flock of (6+1) goats)

One acre of coconut garden can support 15-20 goats. Initially the venture can be started with (6+1) goats and as the flock reaches a threshold of 15-20, surplus can be sold. Cumbu Napier hybrid cultivated over one acre can yield a green fodder of 17 - 20 tonnes per annum. Fodder yield of Desmanthus over one acre is 15- 18 tonnes per annum. Besides, a good amount of feed can be generated from Glyricidia, Agathi, Moringa, Cotton Candy Berry and Monkey Pod Tree raised on the borders and edges. Economics of rearing a flock of (6+1) goats is furnished below:

S.No.	Particulars	Amount (Rs.) per year
Fixed Cost		
1.	Flock size (6+1)	10500
2.	Goat Shed (27 x 27 ft)	150000
Variable Cost		
1.	Labour wages	70000
2.	Green fodder @ 30 kgs per day	35000
3.	Concentrate	25000
3.	Vaccination & Veterinary Aid	3000
4.	Associated Expenses	2000
		135000
Gross Revenue		
1.	Sale of kids, does and bucks (24 no.s @ Rs.500 per kg)	288000
2.	Manurial value of 7000 kgs	10000
		298000
	Net Revenue	163000

As one acre of coconut garden can support 20 goats, it is possible to generate a net annual revenue of Rs. 4.89 lakhs through goat farming alone.

Unemployed Turned Entrepreneur

(i) Case Study 1

Mr. Subramanian of Aliyarnagar, Coimbatore district, Tamil Nadu is overwhelmed to narrate the transformation made by goats in his life and the tangible and intangible benefits accrued through goat rearing. He had been leading a drifting life without permanent employment. Having derived hint from the Integrated Farming System model of AICRP (Palms) scheme of Coconut Research Station, Aliyarnagar, he purchased a pair (1+1) of Jamunapari breed of goats a year back and started rearing in the one acre coconut garden owned by him. Within six months, the goat gave birth to two kids which provoked confidence in him to expand goat rearing to a business venture. He celebrates the kids as new additions to his family. He spells with all hope that goat rearing will scrap his worries and negativities and reframe his life towards prosperity.

(ii) Case Study 2

Mr. Aruchamy, a coconut grower of a village of Pollachi taluk of Coimbatore District owns (7+2) flock of Boer goats. He tells that goats give consistent income to him through kids and manure and he is regardless of the fluctuating price chart of copra.

138th Meeting of Coconut Development Board

138th Meeting of Coconut Development Board was held on 28th July 2020 under the Chairmanship of Smt. G Jayalakshmi IAS, Chairperson, Coconut Development Board. Hon'ble MPs and Members of the Board, Smt. Chinta Anuradha, Shri K.K. Ragesh and Shri Gangasandra Siddappa Basavaraj and other Members of the Board, Dr.B.N. Srinivasa Murthy, Horticulture Commissioner, Dr. Anitha Karun, Director, Central Plantation Crops Research Institute, Shri. Sudhir Garg, Joint Secretary, ARI, Ministry of MSME, and Chairman, Coir Board, Shri Gagandeep Singh Bedi IAS, Agricultural Production Commissioner & Secretary to the Government of Tamil Nadu and Shri B. Pradhan IAS, Special Secretary to the Govt. of India & Financial Advisor attended the meeting. Shri. Saradindu Das, Chief Coconut Development Officer and Shri R. Madhu, Secretary CDB attended the meeting.



Slatted Goat Shed at Coconut Research Station, Aliyarnagar

Soil fertility of his one acre farm is enriched with the droppings and urine of goat. He has planted trees of cotton candy berry, *Thespesia populnea* and Manila Tamarind in his farm which supplies abundant leaves for the goats. In his perspective, rearing goats renders eustress to him. He obtained a net profit of Rs. 1.42 lakhs during 2019 through the sale of goats.

Besides economic benefits, he says goat rearing is a therapeutic activity for his body and soul.

Conclusion

Goat farming which remained as a traditional occupation of India has underwent a major set back in the interim period because of urbanization. Goats are very agile and independent animals with high level of resistance to diseases and are amenable for rearing without drudgery. COVID -19 has left special imprints in the rural economy of the nation. Reverse migration of workers who could not be absorbed per se in farm holdings, disruption of distribution channels, shattered business cycles and informal economy inched up rural unemployment during the COVID period. In the backdrop of the dreadful pandemic, Goat Farming has turned out to be a viable endeavor and a pivot of confidence for rural unemployed youth towards economic prosperity, emotional well being and to transform them as a profitable entrepreneur. ■

Coconut Milk Coffee

Ingredients

Coffee Powder	1/2 cup
Coconut Water	4 cup
Coconut Milk	1/2 cup
Honey & Sugar	5 tea spoon

Preparation Method

Grind coffee bean with its pod. Pour the coffee powder into a jar and mix well with coconut water and keep in the refrigerator for around 8 hours. Then filter the coffee grounds through a fine sieve or a thin muslin cloth. Add half cup coconut milk to the filtered coffee powder. Add enough sugar and honey as sweetner.

It can also be prepared by adding 3 teaspoons of coffee powder instead of coffee beans.

