



Farming of emu bird and It's potential product range to market

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Abstract

Emu farming in India is still in primitive stage and the activity is rapidly increasing in size and number, by spreading into many states including Andhra Pradesh, Maharashtra, Tamilnadu, Kerala, Gujarat, Punjab, Manipur, Chandigarh, Orissa and Assam. This expansion is likely to continue in the coming years in many other states. Majority of the existing emu farmers are rearing the birds simply to increase the number of birds further. Many small sized farms are emerging day by day but neither there is a census available nor any method been designed to account them so far. But, according to Indian Emu Association of India there are around 2000 farms with six lakhs birds in the country.

Emu provides different products of economic value. The prime cuts of emu meat can be ready for sale to restaurants, residential orders, worldwide markets and in the future, shipment to supermarkets. Emu fat is rendered to produce oil, which has dietary, therapeutic (anti-inflammatory) and cosmetic value (Rao, 2004). Emu oil is found to be more cosmetically acceptable with better skin penetration compared to mineral oil (Zemtov *et al.*, 1996). Additionally, the medical industry uses the oil for therapeutic rubbing oil, skin and facial moisturizing lotions and medical applications used for treating the skin of burn victims.

Emu skin has a similar tensile extensibility to ostrich skin and a rigidity value comparable to pig skin (Hoven, 2002). Emu skin is fine and strong, leg skin is of distinctive pattern, hence highly valued (Rao, 2004). Emu leather is well suited for embellishing designer apparel, boots, wallets, handbags and many other accessories. The feathers of the emu birds are double quills, attractive and velvety to touch and they are in demand in the fashion, art and craft industries.

Keywords: Emu, marketing, strategies, business, farming

Introduction

Far from its native habitat in Australia, the flightless emu is leaving its footprint across the plains of India, with an increasing number of farmers commercially rearing the ostrich-size bird.

About EMU

From a single farm in 1996, there are today 1000 EMU farms in 14 states of India, with a majority of them in Andhra Pradesh, Maharashtra and other progressive states of India. The reason for the growth of EMU farms today is the increasing demand for the bird's meat and oil. EMU oil is believed to have medicinal properties, especially for treating the joint pains.

It's time to move over from chicken curry and mutton bhuna, the EMU may soon hit our dining tables in a big way.

This large bird of Australian origin, which offers the fat-free, healthy qualities of white meat and the delicious taste of red meat, is multiplying in EMU breeding centers of Tamil Nadu, Andhra Pradesh, Goa, Maharashtra, even Orissa and Madhya Pradesh.

EMU Specifications

Height at birth: 8 - 10 inches

Adult Height: 5 - 6 feet tall

Adult weight: 100 - 140 pounds

Colour: Black and Brown

Health: Generally Robust, Hardy

Temperament: Friendly, Docile

Lifespan: 30years (approx)

Breeding Method: Mated in pairs

Productive years: Up to 25 years

Eggs per year: 10 to 20 eggs in the first breeding season, gradually increases up to 20-30 eggs in subsequent breeding seasons

Age at slaughter: 16 – 18 months

Height at birth: 8 - 10 inches

Some Highlights

- The genus and species name of the EMU are *Dromaius Novaehollandiae*.
- EMU birds are members of the ratite family along with Ostrich, Kiwi Etc.
- EMU's are raised throughout the world and have adapted to a variety of conditions ranging from the cold winters to the extreme heat.
- Normally Emu's lives up to the age of 30 years.
- The EMU is a friendly bird, which can easily live in the grassy plains and dry open farms. □ EMU grow to be between 5 and 6 feet tall and weigh between 45 to 60 Kg's.
- Height & size of EMU is as good as most of human adults.
- EMU is a bird that survives all climates — whether it is farmed in Australia, USA, China and/or India. Unlike China, where breeding is well organized and the EMU is everywhere;
- As meat on the table
- As oil with medicinal properties
- As shoes/handbags in hi-fashion stores.

In India's EMU industry is still in its early years, with NABARD giving loans, EMU farmers should have it better.

A year-old EMU is five to six feet in height, and weigh 30-40 Kg's and upon completing 18-10 months EMU weighs in range of 50-60 kg. During its growth it changes its colour thrice.

On a new born up to 3 months there will be stripes on its body, after 4 months it starts looking chocolate brown. After 1 year it again starts changing its colour, its feather on the neck goes away and neck looks greenish blue and feathers exhibit a variety of colours but mostly in brown and black shades.

There is no visible distinction between a male and a female EMU. Usually 18-month-old female is capable of reproduction; however, in some EMU's this period may extend up to 20 to 24 months too. As per available national data on an average during breeding period, female EMU lays up to 32 eggs. The breeding period is 6 months, from October to March.

EMU eggs are dark green in colour. Compared to egg of a hen they are 10-12 times bigger. Female EMU may lay eggs after every 3 to 5 days.

EMU has a long life and lives at least for 30 and maximum up-to 40 years. A properly managed EMU is capable of reproduction for at least 25 years. We can take it for granted that they produce 30 young ones per year. So in simple terms if a farmer keeps these birds, takes good care of birds, they will give him healthy financial returns in forms of eggs & chickens for 25-27 years of age. After it stops' reproducing it is a minimum of 50 Kg bird to sell for various products like meat, oil & skin and still make money for the farmer.

EMU Farming in India

Business such as poultry, dairy, sheep or goat rearing or animal husbandry often suffer due to various factors such as eruption and spread of infectious and contagious diseases, resulting in sudden fall in production, climatic changes, excessive heat and scarcity of water.

EMU is naturally immune to all these adversities; hence EMU farming is preferred all over the world today. EMU farming as a complementary to agriculture and is going to be the most profitable business in the near future.

EMU is a sober bird, living on grains, cereals, pulses and grass, its immune system is so strong that it hardly suffers from any disease. It survives in any type of climate. Each and every part of EMU's body is commercially valuable. Hence in India too, EMU- farming is taking its roots.

The Government as per 1972 forest animal husbandry act for protection and rearing of forest animals, has permitted EMU farming which offers great opportunity for foreign investments and export.

EMU farming is a big venture with a huge growth potential. EMUs are tough birds and are even immune to bird flu, but have to be protected from other specific diseases including encephalitis. With a little faith, EMU farmers can sit back and count their money, if they get together to promote EMU meat in households as well as hotel menus.

Due to growing awareness of eating healthy, EMU meat is has started getting in demand in India too. Also, with the increasing acceptability of alternate medicine, EMU oil (removed from the fat deposited below the surface of the skin) containing the pain-relieving oleic acid, and believed to be good for arthritis, has huge commercial potential. Leather products from EMU skin, made on a pilot basis by

the Central Leather Research Institute, were showcased at Delhi's Pragati Maidan some years ago to great acclaim.

Some Highlights

- Emu eats Fruits, flowers, insects, seeds and green vegetation; love caterpillars
- Emus require 6-10 liters' good water daily
- Emus require 3 times food per day
- Female Emu or hen begins laying eggs, male Emu keep watch of incubation
- The emu egg varies in size and colour. It is usually dark green, averaging 5 inches long and weighing approximately 600 grams
- The male waits until the female lays at least 9 eggs and then he starts incubating them by sitting on the nest
- He incubates them for 52-56 days and doesn't eat or drink during this time
- Emu can reproduce for as long as 25 years.

EMU farming - Business of raising EMU birds for two main purposes

1. The first purpose is Breeding Birds - To increase the EMU population, because of the high profits that can be made by selling young and adult EMU's birds.
2. The second purpose is to Slaughter Birds - To get the bi-products like EMU meat, EMU oil, EMU bone, EMU feathers, EMU skin, EMU nail.
 1. The EMU ranch's secondary market will be the slaughter market, whose main products consist of prime cuts of EMU meat, ready for sale to restaurants, residential orders, worldwide markets and in the future, shipment to supermarkets.
 2. High quality leather from the EMU's skin, and five to six liters of EMU oil, which is currently being used in the cosmetic industry, will also, is distributed.
 3. Additionally, the medical industry uses the oil for therapeutic rubbing oil, skin and facial moisturizing lotions and medical applications used for treating the skin of burn victims.
 4. Considering the ever growing population in India we must think about the future requirement of proteins.
 5. Verily EMU will be our food for future! The obvious reason for this is EMU flesh is pulpy and has 98% fatty portion with least cholesterol and high percentage of iron in it. The oil extracted from EMU fat has medicinal value.
 6. Emu skin is very soft it can take up any colour and hence can be decorated with a variety of colours. Emu skin can fetch handsome money in domestic and international market.

So the importance of this business lies in the availability of rich proteins for our people and the sales/ export potential for the oil and the skin obtained from the bird.

There are many reasons as to why one should do EMU farming. In the first place this is a very fast growing business globally and now in India with a very high percentage of profit on investment.

EMU is capable of surviving any type of climate and adversities. It is a non-aggressive bird and is easy to look after it. The birds do not need special structures for their stay neither do they need large chunk of land. A small piece

of land is fine. In one acre of land, 100 to 150 birds can be easily accommodated.

EMU farming is eco-friendly, highly effective, excellent business. This can be complementary to conventional agriculture.

As far as Indian environment is concerned, there is highly congenial atmosphere in the country for this business. The main work of a manual labour in EMU farm is to give the bird's food and water and to collect their excreta.

Hence, the manual labour charges should be very less. Few men can easily look after an EMU farm with 100 birds in it. In the beginning the eggs are used for hatching and reproduction of fleshy young-ones. A sustainable market has been established for EMU flesh, skin, fat, oil, and eggs.

How to make an EMU farm?

EMU birds live on barren or bushy land and always flock together. So far EMU farm are on a non-agricultural or barren land from which water may run off easily is fine. A single bird needs minimum of 400 to 500 sq. ft. area. These birds like open land. An EMU farm must have minimum 20 bird pairs (male & female). A grilled fence can give excellent protection; within the fenced area a structure of 20 x 40 feet may be erected to give the birds shelter from sun, wind and rain.

EMU lives in a natural environment hence it eats grains, cereals, pulses, fruit seeds, leafy vegetables and grass. However, to increase the egg and reproduction the growth rate and feed intake of EMUs will vary with changes in the energy concentration of the diet it is more appropriate to relate the requirement for lysine and other amino acids to energy content. This is done by expressing the requirement for lysine as glycine per mega-joule of EMU. Other amino acids are expressed as a proportion of the lysine level. These conventions have been adopted in the table of suggested nutrient requirements of growing EMUs. These diets should contain a comprehensive chicken grower vitamin and mineral premix.

Following are the suggested nutrient requirements of growing EMU's, and these are available in the readymade food available for EMU's in Indian market;

Metabolisable energy, Lysine, Methionine, Methionine + Cystine, Tryptophan, Isoleucine, Threonine, Calcium, Phosphorus and Sodium;

Bio-security measures to be taken in Emu Farming / breeding

1. Farm should ideally be placed and away from the population.
2. The EMU Fencing should be proper with adequate breeding facilities.
3. Proper disinfection procedures/ foot dips etc. should be maintained.
4. The quarantine sheds should be separate and away from other sheds.
5. Routine disease monitoring procedures like post-mortem examination of dead birds and periodic sera antibody assay is recommended.
6. Water source should be tested for mineral, bacterial, chemical, contamination and pathogen load.
7. The other birds (parent, commercial or pure line etc.) and pets should not be reared/allowed to enter the same farm.
8. The brooding space should be optimum.

9. There should be provision of showers, change over and dips.
10. Proper storage of feed to prevent contamination should be made.
11. The water quality should be checked periodically and if contamination is seen it should be treated with any sanitizer.
12. There should be facility for disposing off/destroying the bedding / dead birds etc.
13. The equipment should be proper, properly disinfected and separated.
14. The farm should have a water sanitation system.

EMU based commercial products

EMU eggs

EMU egg is the most important among various products in emu farm. In the initial period the eggs should be used for the purpose of reproduction. In the later period the eggs will be used for growing fleshy young ones. In emu farming the egg production & hatching remains a very important everlasting process. In future EMU eggs production will definitely fetch large amount of profits. These birds live for thirty to forty years and remain sexually active for at least twenty-five years. Hence with a single investment one can obtain long term production & profit. A single bird gives minimum twenty and maximum forty eggs every year. These eggs have dark-green colour. Each egg weighs 400 to 600 gms.

EMU Chicks

- Emu chick weighs approximately 70% of emu egg weight
- Emu chick breeds naturally and/ or by using incubator
- Artificial incubation is often conducted at a temperature of approximately 97.5 degrees Fahrenheit
- Average incubation time ranges from 48 to 52 days
- Born chick colours are coffee brown with white line marks
- Colour will change after 3 months
- Nutrition food and purified water is must up to 3 months
- 3 months old chick can either be grown for future reproduction and/ or can be sold for other farmers to begin farming; this is one of the most revenue making and less time consuming activity
- Reproducing chicks can be repeated with an adult pair of EMU's for minimum 25 times (25-40 eggs every year).

EMU Meat

Low on cholesterol, high on protein 97 to 98% fats free, what sounds like a well-rehearsed line designed to sell the benefits of consuming EMU meat. In India there are estimated 1,000 EMU farms, 300 in Maharashtra itself are up and running in the today.

While 1,000 may seem like a big number, but it's a drop in the ocean in comparison with the poultry farms that dot the country. Likewise, in production, there are estimate of about 33,000 Tons of EMU meat being produced in India now, which is a fraction of the 1.9 million Tons of chicken meat produced in the country every year. The bird's meat is considered a healthy substitute for other red-meat variants such as lamb or beef. It is supposed to be extremely nutritious, with fat and cholesterol content being much lower than in any other red meat.

Each and every part of EMU's body is commercially valuable. The most important is of course, its meat which is 97 to 98% fats free. EMU meat is rich in proteins; it contains plenty of iron, vitamin B-12, hence as the modern research shows 'EMU meat is an excellent diet for people suffering from heart-ailments. EMU meat has less fat content, it is easily digestible, very tasty and hence it serves as a very good alternative for mutton and chicken. Therefore, there is a great demand for it in international market. Each bird can yield about 25 kg of meat.

EMU Oil

A number of studies have been conducted and are currently being conducted throughout the world on facts of the Emu oil, including its composition, benefits, applications in different industries and the resulting properties of compounds formulated with the oil.

Traditionally Emu oil has been used for treatment of muscle and joint pains. Clinical experience with Emu oil has shown that its two major benefits are its anti-inflammatory properties and its ability to penetrate the skin. It also appears to provide some solar protection. The penetrating effect appears to be related to its non-phosphorous composition.

Our skin is phosphor-lipid deficient. In other words, there is no phosphorous in our skin. If you put anything on your skin that has phosphorous in it, your skin is 'programmed' to keep it from penetrating. Anytime you put anything on your skin that is phospholipids' deficient, or has no phosphorous, it penetrates right through.

Researchers who have analyzed the oil found that there is a compound in oil that they believe is the key to its effectiveness. This compound molecule is believed to be collagen. Collagen is found in chickens and turkeys in a much diluted form. However, the test result on the Emu shows this molecule to be present in an extremely concentrated form.

Research and development of Emu oil using in cosmetics and pharmaceuticals is rapidly expanding.

Emu oil has been documented to exhibit the following properties and/or has been used for the following purposes.

- Anti-inflammatory
- Moisturizing
- Cholesterol reducer
- Bacteriostatic
- Penetration enhancer
- Significant epidermal proliferative activity
- No-comedogenic
- Significant wound healing agent
- Significantly reduces recent keloid scarring
- Appears to promote faster healing of burns with less pain and scarring
- Anti-arthritis activity
- Excellent emulsifier

This is an important product in emu absorbed in human skin within 4 used in skin ointments and also for various cosmetic products. Recent research oil serves as excellent medicine for arthritis. It is also used as a pain killer. The fatty acids present in this oil decree research. Because of the medicinal value of this oil, western countries are capturing international markets by producing new cosmetics creams has a great opportunity to enter in to international market.

EMU Feathers, Skin & Nails

EMU - Feathers are double quilted, attractive and velvety to the touch. They are soft, light and nonallergic, which makes them the ideal material for a host of applications. They are in demand both in the fashion and in art and craft industries. They are used as feather duster, feather pad, fans, bows, and masks, finishing metals prior to painting, weather-proof apparels, and pillows, blazers, sweaters, jewelry, and craft items.

EMU - Skin is very soft and smooth; hence it has a great demand in international leather industry for producing new fashionable goods. A variety of goods can be produced from EMU-skin. A fully grown up bird can yield 6 to 8 sq. ft. leather.

EMU skin is also a Good option for crocodile skin, as EMU leg skin is easily available and have same look and feel.

EMU - Nails are polished, finished and designed in different ways to be used as various jewelry pieces for woman.

Opportunity of EMU Farming in India:

In India, chicken is the most popular of the poultry species, followed by ducks and quails. Of late, we need to diversify to other species of poultry in order to reap more profits. Considering this let us discuss about EMU.

EMU is a social bird with dark whitish complexion. The birds live in groups and can thrive under varying climatic conditions ranging 0° C to 52° C. These birds are omnivorous and eat leaves, vegetables, fruits, insects, worms. They can be fed modified poultry feed.

It is clarified by the Chief Conservator of forest, GOM, Pune that EMU is an exotic bird and it has not been included in any of the schedules of Wildlife (Protection) Act, 1972. The provisions of Wild Life Protection Act, 1972 and rules made there under are not applicable for these birds. As such no permission from forest Department is necessary for rearing, farming and selling of these birds.

At present there are four EMU Associations in India. They are

In Hyderabad as; Indian EMU Association; In Mumbai; National EMU Association; In Baramati; Maharashtra - Maha EMU Association; In Pune; EMU Farmer Association.

The experience of the Association in these states has been encouraging, and in view of the same we want to be the pioneers to introduce this revolutionary farming concept in the number 1 sate of the country and our home state Gujarat.

Business Plan for Emu Farming

- One can Start Emu farm with maximum 1 acre of agricultural and/ or non-agricultural land □ Purchase Minimum 20 to 60 number of genetic Emu chicks from good Emu farm organizers; □ Emu Birds are grown by group concept only
- Farm maintenance should be very important with good organic feed, purified drinking water; □ Emu bird 1st yields only in winter season and after completion of 21 months (in India November to December months)
- Further yield period is every year in winter season from October to March
- Average of 10 to 15 eggs can be obtained from the 1st yield and subsequently average of 25 to 30 eggs can be obtained from next yields every year
- Chick sale is a best and most profitable compared to egg sale.

Financial assistance

Loan from banks with refinance facility from NABARD is available for establishing EMU farm. For obtaining bank loan, the farmer should apply to the nearest branch of a Commercial or Cooperative or Regional Rural Banks in their area in the prescribed forms which is available in the branches of financing banks. For EMU farming schemes with very large outlays, detailed report like this document and financial details need to be prepared. The technical officers attached to or the Branch Manager of the bank can help/give guidance to the farmers in preparing the project report to obtain bank loan.

Security

As per RBI guidelines issued from time to time;

Insurance

Bank may ensure that the borrower takes insurance of assets created out of a bank loan including insurance of Emu birds. Each bird is ensured for Rs. 25,000 and premium is generally 3% of the total value, in this case it will be Rs. 750 for each bird.

Availability of EMU pairs

In India there are private EMU hatcheries supplying the EMU pairs of different age groups i.e. 3 months, 6 months, 12 months and 15 months old.

Availability of EMU feed

Poultry feed (layer) can also be fed to EMU. In addition to poultry feed mineral mixture and shell/ stone grit can be given. Sprouted desi Chana and Methi can also be fed during layer season. During summer season chopped vegetables like cabbage, carrot, beetroot, etc. can also be fed.

Training & experience

Training on EMU farming is given in farms at Vadodara & various other locations in India for 3-5 days.

Equipments for EMU farm

Water, Feeders and egg trays are required, all this equipment are locally available and currently used in poultry industry and can also be used for EMU farming too.

Sale of eggs

At present the hatcheries mentioned are purchasing eggs @ Rs.1000/- to 2200. Sale of manure: Manure can be applied on own farm or can be locally sold to other farms. Like poultry manure, EMU manure is also good for fruits and vegetable gardens.

Sale of Oil

About 4-6 a litter of oil is available from a bird which is devoid of any colour taste and odor. At present market prices, the price of one litter refined Emu oil is Rs. 3000/- to Rs. 4000/- The oil is penetrating and is having moisturizing, Analgesic, anti-allergic and antiseptic properties. The oil is used in analgesic ointments, beauty creams and lotions, soaps, hair oils, shampoos, perfumes and massage oils. The raw fat/ crude oil of Emu fetches Rs.1000 per Kg.

Project Costing & Revenue details

It is attached in as appendix – A to this proposal with all the details from start up to 15 years in operations.

Repayment of loan

The repayment period depends upon the gross surplus generated in the project. The loan will be repaid within 8 years including first year as grace/moratorium/gestation period in suitable monthly instalments (6/year) during March to October only.

Scope & potential

EMU farming offers great scope and potential because of its supplementary income additional employment and simplicity in operation. Efficient EMU development can be achieved by promotion of small units in villages through Co-operative sector, arranging EMU birds, technical inputs and organizing training sessions for farmers on this subject. It is the next generation poultry farming, and it is the knocking the door of Gujarat for a bright and rewarding business opportunity for farmers in addition to the traditional farming business.

EMU Farming, a lucrative option

EMU farming, which is growing worldwide, is gaining in popularity in India, and many are taking to it as an alternative to cash crops.

EMU, native to Australia, is stated to be the second-largest living member of the ratite family of flightless birds. The demand for EMU is said to be growing as the bird has "100 per cent utility" in terms of market value.

In addition to all the revenue by reproducing eggs & young EMU chicks during the entire lifecycle of EMU (30 to 40 Years) it is equally valuable once is dead too:

The EMU's meat accounts for 45 per cent of the bird's weight, which means 25 kg per average sized bird. At Rs 300 per kg, this amounts to Rs 7,500.

EMU's feathers, nails, bones and skin of legs also go into commercial use. In short, 96 % (per cent) of the bird is used after slaughter currently. EMU farms in India have around 25,000 of the birds, including 10,000 grower and 15,000 breeder birds. The total number of EMUs is expected to grow up to 40,000 this year.

Big money also lies in the EMU's oil, which has great demand worldwide. An adult EMU can yield up to 15 kg oil.

EMU oil has its demand for its therapeutic and cosmetic use. One kg of EMU Oil costs between Rs 5,000 and 6,000, and it means an income between Rs75, 000 and 90,000 per bird.

The EMU's meat accounts for 45 per cent of the bird's weight, which means 25 kg per average sized bird. At Rs 300 per kg, this amounts to Rs 7,500. EMU's egg, which weighs between 500 and 750 g, comes for around Rs 2,000. EMU's feathers, nails, bones and skin of legs also go into commercial use.

In short, 96 per cent of the bird is used after slaughter Currently, EMU farms in India have around 25,000 of the birds, including 10,000 grower and 15,000 breeder birds. The total number of EMUs is expected to grow up to 40,000 this year.

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