



About the Author....

Dr. S.K. Maini - completed his B.V.Sc., from the Andhra Pradesh Agriculture University in 1975. He worked in the A.P. State Animal Husbandry Department for a year, then returned to the University with an ICAR junior research fellowship for M.Sc in poultry science, which he completed in 1978 with HEH the Nizam's Gold Medal for highest OGPA (Over all grade point average) under the able guidance of Professor Dr Vardarajulu, with a project on poultry meat technology. After completing his M.Sc he joined the Agriculture University as a Research Assistant in the Poultry Science Department and was posted to the All India Coordinated Research Project for Poultry on Eggs (AICRP) Rajendernagar, Hyderabad.

While working with Basik Breeder's Pvt. Ltd., Hyderabad, he visited Shaver Poultry Breeding Farms - Cambridge, Ontario, CANADA for an on the job training for the production, maintenance and management of genetic stocks, the pure line and the GGP's.

From Poultry breeding he shifted to Pharmaceuticals. At present he is working with M/s Vesper Pharmaceuticals of Bangalore as its General Manager (Technical).

He has published over 65 popular articles in various magazines and journals, of which 42 are on Emu's and their care, housing, husbandry, nutrition, disease control etc. He was instrumental in bringing together the Emu farmers to form the Emu Farmers Welfare Association during 2007, and is its founder Joint Secretary.

Emu

Farmer's Management Manual

- Dr. S.K. Maini



Emu Farmer's Management Manual - Dr. S.K. Maini

Price : Rs. 395/- US \$25

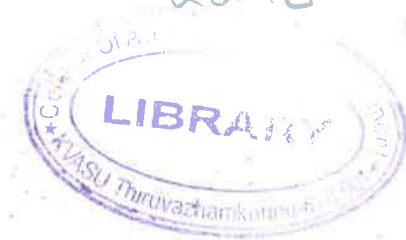
Hind Publications

204, Plot No. 19, Huda Complex, Saroor Nagar, Hyderabad - 500 035. India.
Ph : 040-24042046, Mobile : 09391378805 E-mail : hindpoultry@hotmail.com

HIND PUBLICATIONS

2248

28

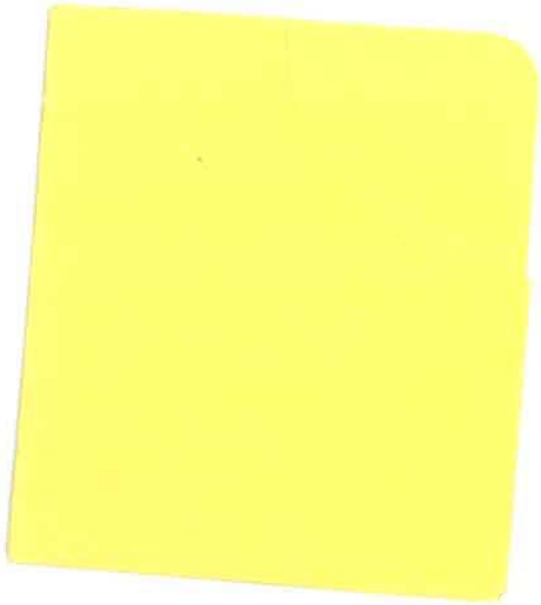


**COLLEGE OF AVIAN SCIENCES & MANAGEMENT
KVASU CAMPUS, THIRUVAZHANKUNNU**

Acc. No. 2248.....

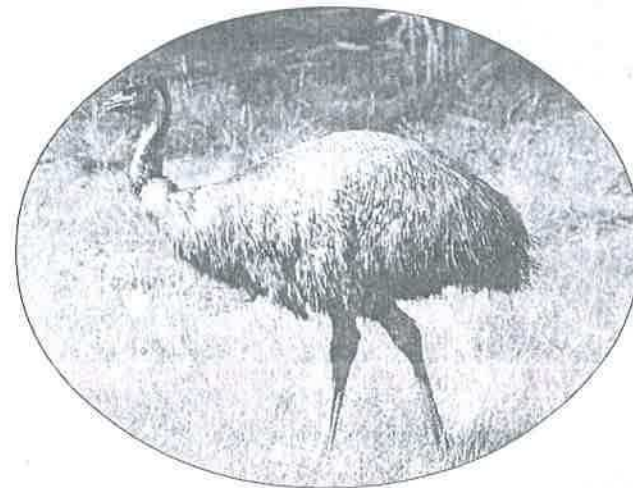
Call No.....

**This book should be returned on or before the
date last given below.**



--	--	--

**EMU FARMER'S
MANAGEMENT
MANUAL**



by
Dr. S.K. MAINI
B.V.Sc., M.Sc.,

HIND PUBLICATION
Hyderabad.

Authored by :

Dr. S.K. MAINI, B.V.Sc., M.Sc.,

Published by :

HIND PUBLICATIONS

204, Plot No. 19, Huda Complex,
Saroor Nagar, Hyderabad - 500 035.

Andhra Pradesh. INDIA

Phone : 91-40-24042046, 09391378805

E-mail : hindpoultry@hotmail.com

Edition : **2009**

Price : **Rs. 395/-**

Printed at :

Akruthi Offset Printers

Hyderabad.

*I dedicate this Manual to my parents, Shrimati
Asha and late Sri Om Prakash who always
encouraged and supported me and my natural
love for the animals and birds since my
childhood days.*

- Surinder Kumar Maini

CONTENTS

About the author	1
Forward	3
History of the Emu's	5
General information about the Emu's	6
Some more information	7
To succeed in Emu business	8
Go on Reading.....	10
Comparison with Poultry Industry	11
Current Industry Practices	11
Current Industry Status	13
Legal Status	13
Advantages to the Emu farmers	14
Benefits of Emu farming to the Nation	15
Requirements to enter the Emu business	15
Various opportunities available in the Industry	16
Emu's versus other livestock	16
Market Potential	17
Economy of scale	19
Future of the Emu Industry	19
Problems of the Emu Industry	20
Problems presently faced by the Emu Farmers	21
The required change	22
Improving the Emu's performance	22
Phenotypes and colors available	24

Selection and confirmation of the birds	24
Chicks Brooding and Rearing (Day old to 13 th weeks of Age)	27
Receiving the Chicks	27
Care of the Chicks	27
Lights	28
The Brooding of Chicks	28
Housing and Runs	28
Handling of the Birds	29
Stocking Densities	30
Floor Space	30
Ventilation	30
Body Weights	31
Grading	31
Feed and Feeding	32
Water and Medication	32
Biosecurity	33
Sexing of Emu chicks	33
Traceability	34
Record Keeping	34
Usual Problems of this Age Group and their Remedies	34
The Emu Growers/Juveniles/Blackheads (14 th week to 39 th week of Age)	39
Peripheral Fences	39
Grower Housing	39
Handling of the Birds	40
Body Weights	40

Body Weight and Feed Consumption Chart	40
Feed and Feeding	41
Water and Medication	41
Record Keeping	41
Usual Problems of this Age Group and their Remedies	42
The Yearlings (40 th week to 78 th week of Age)	43
Care of the Birds	43
Handling of the Birds	
Feed and Feeding	43
Usual Problems of this Age Group and their Remedies	43
The meat type Emu birds management	45
Body Weights	48
Body weights and Feed Consumption	48
Expected yields of Meat, Fat and Skins	50
The Emu Breeders	51
Housing type and requirements	51
Breeding Season and Behavior	53
Biosecurity	54
Drinking water	54
Feed and Feeding	54
Handling of the Breeders	54
Breeder Targets	55
Nutrition of the breeders	55
Nutrition of the off season breeders	55

Effects of deficiencies of Vitamins and trace Minerals	56	Transportation of the Chicks, Growers and Adults	79
Artificial Insemination	59	Nutrition of the Emu's	81
Reproductive System of the Male	59	The Nutrient Required	81
Reproductive System of the Female	61	Most common causes of Nutrient Deficiencies	83
Egg Formation	62	Required corrective Action	83
Record Keeping	65	Quarter wise Feed and Feeding of the birds	84
Eggs Collection and Cleaning	66	Nutrient specification for different age groups	85
Eggs Handling and Storage	66	Important Vitamins and Trace Minerals required	85
Usual Problems of this Age Group and their Remedies	67	Diseases and Immunity	87
The Emu Hatchery	71	Disease are Caused by	87
Required Facilities	71	Disease Prevention Strategies	89
Hygiene and Sanitation	71	Immunity of the Emu's	89
Incubation of the eggs	71	Vaccination programe for the Emu's	91
Incubation Requirements	72	Mycotoxins in the Emu feed	93
Regular checks required	73	Classification of the Mycotoxins	93
Incubation Trouble Shooting	74	Signs and Symptoms of Mycotoxicities	95
Hatching of the Chicks	75	Strategies to prevent, reduce and treat Mycotoxicosis	96
Chicks Leg taping	76	Mycotoxin induced health problems	97
Chicks identification methods and uses	76	Worms and deworming	101
Microchipping	76	Ectoparasites	102
Leg bands	77	Plants and toxicities	102
Tatoeing	77	Rodents and Insects Control	104

Dealing with Emergencies	105
Farmer's Emergency Kit	107
Drug incompatibilities	109
Appendix	
No: 1. Egg Production Data Recording	111
No: 2. Chicks Hatched Data Recording	111
No: 3. Eggs weighing and weight loss calculation	112
No: 4. Chemical Rodenticides	112
No: 5. Insecticides	113
No: 6 Dewormer Required – Calculation	113
No: 7. Age related body weight and feed consumption table	114
No: 8. Body weight recording sheet	115
No: 9. Coefficient of Variation – Calculation	116
No: 10. Physical Examination of the Emu's	117
No: 11. a. Legal status of the Emu's	120
No: 11. b. The Indian Emu Meat Market	121
No: 12 Environment Issues	122
No: 13. Financial Assistance	113
No: 14. Emu Farmers Welfare Association	124
No: 15. Costing Blank	126
References	128

ABOUT THE AUTHOR

Dr.Surinder Kumar Maini - completed his B.V.Sc., from the Andhra Pradesh Agriculture University in 1975, worked in the A.P.State Animal Husbandry Department for a year, then returned to the University with an ICAR junior research fellowship for M.Sc in poultry science, which he completed in 1978 with HEH the Nizam's Gold Medal for highest OGPA (Over all grade point average), under the able guidance of Professor, Dr Vardarajulu, with a project on poultry meat technology, upon completing his M.Sc he joined the Agriculture University as a Research Assistant in the Poultry Science Department and was posted to the All India Coordinated Research Project for Poultry on Eggs (AICRP) Rajendernagar, Hyderabad.

During the year 1978 he was selected by the Agriculture Research Service (ARS) as a Scientist for its Products Technology Division and posted to the Sheep and Wool Research Station, Avikanagar, Rajasthan. He declined to join the ARS, as he was a poultry science graduate he preferred to join the Poultry Industry as a Veterinarian, where he looked after the breeders and hatcheries for several years, he was sent to the Shaver's Poultry Breeding Farms, Cambridge, Ontario, CANADA, while working with the Basik Breeders Pvt. Ltd., Hyderabad for an on the job training for the production, maintenance and management of genetic stocks, the pure line and the GGP's.

From Poultry breeding he shifted to Pharmaceuticals during 1995, joined M/s Solvey BE Animal Health Ltd. A joint venture of M/s Solvay of Belgium and Biological E Ltd. of Hyderabad as its DGM (Technical), from where during 1998 he shifted to M/s Vesper Pharmaceuticals of Bangalore as its General Manager (Technical), in both the capacities he was involved with

the training of the field staff, technical support to the marketing team and provided quality control services to the poultry vaccine production unit.

His love for animals and birds since his school days attracted him to the field of livestock and poultry as a veterinarian and to this exotic flightless bird the Emu, for which he spends considerable time and energy from spreading the knowledge, information and sharing his experience gained over several years for the benefit of this new and emerging branch of the Indian Livestock Industry.

He has published over 65 popular articles in various magazines and journals, of which 42 are on Emu's and their care, housing, husbandry nutrition, disease control etc. He was instrumental in bringing together the Emu farmers to form the Emu Farmers Welfare Association during 2007 and is its founder Joint Secretary.

This booklet is the proof of the above paragraph.



TECHNICAL OFFICER
EMU MEAT DEVELOPMENT
CORPORATION LTD
Shardulnagar, Myskote - 23

- Dr. K. Chandra Shekar Reddy

FORWARD

Over the years, people have asked me all kinds of questions regarding Emu Farming, ranging from the general "Tell me everything about the Emu farming" to the specific questions about the eggs cleaning, farm management, Emu genetics, breeder flock management, male management, incubation, hatching the chicks, care of the chicks, slaughter methods, meat and fat processing and storage, nutrition, disease control economics, do's and don't etc.

Since Emu Farming is of recent origin worldwide, practically very little R & D work has been done, no books or magazines are available in India, not much information is available to the Indian farmers in the language they understand, the details and information available on the Internet are from western countries or Australia and may not be suitable as it is for the Indian Emu farmers, not many trained Emu hands or specialist are available to help farmers during emergencies.

Lack of knowledge, misguidance, rumors, unscientific practices and lack of quality control have caused the Emu Industry enormous damage and hampered its growth over the years.

This complicated scenario stimulated me to bring out this manual for the benefit of one and all in the Indian Emu Industry and especially those who are really interested in the subject but can neither reach me nor get the required information on time.

As on date there are no Standards for the Emu Farming in India and till such time the Indian Standards are developed for the various products, practices and procedures – the information in this manual can be considered

as the Indian Emu Industry Standard, the farmers and all concerned with the Emu Farming can use information from this manual as a guide to the optimization of their economics and operations.

I am confident this manual will bring clarity to the farmers' knowledge and thinking and dispel their misconceptions.

- Dr.S.K.Mai



HISTORY OF THE EMU'S

Emu's belong to an ancient group of flightless birds known as the Ratites, which includes the Cassowary, the Kivi, the Ostrich and the Rhea. Emu's lived and roamed the Australian Wild for over a million years, were hunted down by the aborigines for their tasty meat, skins and fat.

Several species existed earlier but today only one species of Emu's survives and that is known as *Dromaius novaehollandiae*.

Emu Farming is of very recent origin worldwide, it was first started by two Swiss families in Kalannie in Western Australia during 1970, this farm closed after 3 years of its starting.

The Australian Government began to recognize the Emu's potential and started a pilot farm in 1976 at Wiluna also in Western Australia. The Australian Government permitted the first private Emu farm to commence operations with the capture of 500 Emu chicks from the wild, simultaneously studying its feasibility and monitoring their growth, nutrition, diseases, reproduction and behavior.

The Australian Government passed a legislation during 1987 and made Emu Farming a reality, the first slaughtering was done in 1990 for its meat.

In India the Emu's were first imported by Mr Ram Mutiala an NRI from the United States during 1996, to a farm in a small town called Tanuku in Andhra Pradesh. The pioneering work for this Industry was done by stalwarts like Mr. DRK Reddy of Gollamamidada, Mr Shivanand Reddy of Cuddappa, Mr Satyanarayana Reddy of Peddapuram, Mr Laxma Reddy of (Siddipet) Hyderabad, Mr Verma and Mr Vijay Kumar of Hyderabad and several others in the neighboring states.

From the state of Andhra Pradesh the Emu's slowly moved to the neighboring states of Maharashtra, Karnataka, Tamil Nadu, Orissa, Madhya Pradesh, Gujarat and other states.

Emu's are farmed worldwide for their nutritionally healthy meat, skin and cosmetically important oil besides the feathers, nails, toes and blow out egg shells for ornamental purposes.

EMU'S - GENERAL INFORMATION

- Are native to Australia – it is the Australian National Bird
- Long life span – may live up to 30 years
- Adults weigh between 40 and 45 kgs
- Grow tall – to a height ranging between 5' 6" to 6' 6"
- Emu's are very inquisitive and curious type of birds
- Normally not aggressive to humans
- Mature between 2 to 3 years of age
- A sex ratio of 1 : 1 is required for breeding
- Lays eggs for 15 to 18 years
- Are seasonal breeders – lays during cold weather months
- Emu's can lay between 30 to 50 dark green colored eggs per season
- Eggs are laid during the evenings mostly between 5 and 8 PM
- Incubation period is long – ranging between 50 and 56 days
- Chicks are about 6" to 7" tall when hatched
- Chicks weight at hatch is about 2/3 of the eggs weight
- Chicks have longitudinal strips with speckled heads
- Emu's are good swimmers and fast runners
- Always raise chicks out of sight of the breeders
- Emu's are omnivorous
- The male hatches the eggs and takes care of the chicks

- Females never incubate the eggs or look after the chicks
- Adult Emu's are comfortable in any weather
- Emu's are friendly, loveable birds, easy to manage

Emu Farming is profitable

SOME MORE INFORMATION

The Ratite name means "without Keel" in latin – it relates to the breastbone of the Emu's, that is convex in shape without a ridge to which bilateral flight muscles are attached in flying birds. It is also called "the camel of New Holland" hence the species name "novaehollandiae".

Emu's have small useless wings, hence it can not fly, these are used for restraining the birds for investigation purposes, shifting and during individual treatment.

Emu's don't have crop for feed storage like the chicken.

The females and males are allowed to run together for few weeks before the beginning of the breeding season, the females select their mates, begin to lay eggs, 1 to 2 months after the mating begins.

Emu feathers have two shafts and are used for ornamental purposes.

Emu's are not properly domesticated birds, ensure they do not escape from captivity, catching them will be very difficult as they are good runners and can reach speeds of over 40 kmph.

Emu handlers should spend more time with the birds when they are chicks and juveniles, this makes their handling easy when they become adults.

Emu's adapt well to a climate ranging from -20°C to + 50°C, that means Emu's can be reared comfortably from Kashmir to Kanya Kumari in India.

In the wild the Emu's eat grains, berries, cherries, flowers, shoots, roots, weeds, seeds, bugs, frogs, small snakes, lizards and a variety of insects.

The females make a booming sound from the air sacs, while the males make a grunting sound like the pigs, the chicks make a peeping sound.

TO SUCCEED IN EMU BUSINESS

The farmers must know the following and discuss them with their farm friends, customers, hatchery men and the veterinarians. Try to get maximum possible information and implement what ever is possible for their own and for the benefit of others. Sharing information and knowledge does not cost

General biology and behavior of Emu's

Handling chicks, growers and adults

General management procedures

Disease controls to maintain healthy birds

Signs and symptoms of disease, stress and distress

Body weight, Feed consumption Standards

Nutritional and feeding requirements including stone grit (insoluble grit) and shell grit (calcium source for laying birds)

Exercise requirements

Reproductive behavior including egg handling, storage, incubation and hatching Brooding and Rearing of young chicks (to 13 weeks)

Space allowances in breeder pair pens and group enclosures

Housing, environmental needs including shelter, and "hiding" places to avoid bullying or unwanted sexual overtures

Fencing design and construction

Catching and handling of birds of different age groups

Finding the Age of chicks and growers

Loading, offloading from vehicles and transportation

Handling, nursing and treatment of sick and injured birds including giving

medicines by mouth or injection

Hygiene and disinfection methods

Water bathing needs and provision made

Selection of breeding stock

Record keeping and their analysis

Methods of emergency killing

Farm Slaughter of the birds

