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Research Article

EMU FARMING IN KRISHNA AND GODAVARI DISTRICTS OF ANDHRA PRADESH - A SURVEY

***Susmita T.**
Instructional livestock farm complex, NTR college of Veterinary Science, Gannavaram, Andhra Pradesh, India
**Author for Correspondence*

ABSTRACT
Emu (*Dromius novaehollandiae*) is a rare and interesting species with unique attributes and habits. Emu farming will be a booming agri-business due to their benevolent donations to the human race viz. pain relieving oil, red healthy meat, soft, supple leather and gorgeous feathers. Hence this survey was conducted to know the management practices followed by the emu farming enterprenuers in Krishna and Godavari districts of Andhra Pradesh.

Key Words: *Emu, Group I, Group Ii, Laying Period, Egg Production*

INTRODUCTION
Emu (*Dromius novaehollandiae*) is a rare and interesting species with unique attributes and habits. Emu farming will be a booming agri-business due to their benevolent donations to the human race viz. pain relieving oil, red healthy meat, soft, supple leather and gorgeous feathers.
Growth in any new industry starts with building of breeding stock. Because it is a new industry there is a shortage of birds and high prices can be demanded for good stock. At this stage, lot of money is being exchanged in buying and selling breeding stock, hatching eggs, chicks, yearlings and proven breeders. As more and more people attracted to entrepreneurship birds numbers have to be increased to a level where there are sufficient birds so that some can be taken out of breeding and slaughtered for meat. Many countries in the world are moving simultaneously towards this point but before this a consumer demand for the products is to be created. There is little information about the management and economic aspects of Emu farming in our state and hence this study is taken up in Krishna and Godavari Districts with the following objectives .To study the managemental practices followed in the commercial emu farms.

MATERIALS AND METHODS
Purposive and stratified random sampling was adopted to select ultimate sample. Three districts viz., Krishna, West Godavari and East Godavari were selected as those three are the districts in which emu farming was introduced by the enterprising entrepreneurs. The list of farmers rearing emu birds in the selected districts was prepared and stratified into two groups i.e. Group I (Farms upto 100 emu birds) and Group II (farms with 100-200 emu birds). From the groups so stratified 50 farms from Group I and 15 farms from Group II were randomly selected in probability proportion to their number in each size group. The sample of the study stood at 65. The primary data pertaining to the production aspects were collected with the help of a specially designed schedule by personal interviews and presented at current prices to estimate costs and returns of emu birds. Information of management practices was also collected from the selected farmers.

RESULTS AND DISCUSSION
Basic Features of the Selected Holding
Family Size
It is evident from Table 13 that family size decreased with increase in the farm size. The size of the family ranged from 4.0 members in group-II to 4.16 members in group I with an over all average of 4.12 members. On both the size groups, the number of female adults was more than male adults.

It is observed that the number of workers per family was more or less the same in both the size groups. The percentage of family members involved in emu farming was 26.43 and 25.00 in Group I and Group II.

Table 13: Family composition and worker members

Particulars	Group I	Group II	Pooled
1. Adults			
Males	1.08	1.07	1.08
Females	1.12	1.13	1.12
Children	1.96	1.80	1.92
Total	4.16	4.0	4.12
2. Family members engaged in Emu farming			
Male	0.98	1	0.98
Female	0.12	-	0.09
Total	1.1	1	1.07
3. Percentage of family members involved in emu rearing			
Male	23.55	25	23.88
Female	2.88	-	2.21
Total	26.43	25	26.1

Educational Status of emu Farmers

It is clear from Table 14 that 74 per cent of farmers in group I and 93.33 per cent of farmers in group II had college education. Those who had secondary education stood at 20 percent in group I and 6.66 per cent in group II. There were no illiterates running the emu farms. This infers that higher education was a prerequisite to have a grasp of the management practices essential to maintain emu birds.

Table 14: Educational status of Emu farmers

Educational Status	Group - I		Group – II		Pooled	
	No.	%	No	%	No	%
Primary	3	6	-	-	3	4.61
Secondary	10	20	1	6.66	11	16.92
College	37	74	14	93.33	51	78.46
Illiterate	-	-	-	-	-	-
Total	50	100	15	100	65	99.99

Occupational Distribution of Selected emu Farms

A look at Table 15 reflects that for only 8 per cent of the group I farmer's emu farming was the main occupation. The percentage of farmers in business stood at 72, while that in employment was 20. For those farmers, these two activities were the main occupation.

Table 15: Occupational distribution of selected Emu farmers

Occupation	Group - I		Group – II		Pooled	
	No.	%	No	%	No	%
1. Main Occupation						
Emu farming	4	08	5	33.33	9	13.84
Employment	10	20	-	-	10	15.38
Business	36	72	10	66.66	46	70.76
Other	-	-	-	-	-	-
2. Subsidiary Occupation						
Emu farming	46	92	10	66.66	56	86.15
Employment	-	-	-	-	-	-
Business	-	-	-	-	-	-
Other	4	08	-	-	4	6.15

In group II emu farming was the main occupation for 33.33 per cent and for the remaining 66.66 per cent, business was the main occupation. For 92 per cent of the farmers in group I emu farming was subsidiary occupation and in group II the same percentage was 66.66. These observations indicated that emu farming at present to a grater extent accepted as a subsidiary occupation.

Farm Size and Number of emu Birds

From the particulars presented in Table 16 that the average size of the farms was 50.12 in group I and 141.33 in group II respectively.

Table 16: Farm size and numbers of Emu birds

Particulars	Size Group I	Size Group II	Pooled
Number of selected farms	50	15	65
Total number of birds	2506	2120	2416.92
Average size	50.12	141.33	71.16

Details of emu Stock on Selected Farms

In group I the number of birds in growing phase was 835 (33.32%) while birds numbering 1671 (66.67%) were found in the laying phase. In group II the number of birds found in growing phase was 706 (33.30%) while those in laying phase was 1414 (66.69%) (table 17).

Table 17: Details of Emu stock on selected farms

Size Group	Growing phase	Laying phase	Total
Group – I	835 (33.32)	1671 (66.67)	2506 (100)
Group – II	706 (33.30)	1414 (66.69)	2120 (100)

Figures in parenthesis indicate percentages to total

Asset Structure on emu Farms

The study of farm assets in general indicates the economic background of the farmers the risk bearing ability of the farming largely depends on the value of assets owned by the farmer. The particulars of farm assets for the selected categories of farmers are presented in Table 18.

The value of farm assets was Rs. 12, 86, 503 in Group I and Rs. 14, 89, 592 in group II. Land accounted for 27.20 per cent and 26.97 per cent in Group I and Group II respectively. The value of birds in terms of percentage was 23.74 in Group I and 28.75 in group II. The value of incubator was Rs. 1, 57, 142 (12.21%) in group I and Rs. 18, 20, 000 (12.22%) in group II. Very closely followed asset was sheds and fencing the value of which in both the groups was Rs 1, 50, 360 (11.69%) and Rs. 1, 13, 333 (7.60%) respectively. Other important assets were generator, incubator sheds, hatching sheds, store room, electric motor etc.

Management Aspects of emu Farming

The management practices followed in any livestock farming play a major role in success or failure of the farmer. The management practices include the housing, feeding, medication etc. The recommended floor space, water space, feeding space should be provided to the emu for their better growth and maturity. Feeding of a balanced ration as per the recommendations following vaccination and de-worming schedules enables better growth of the birds.

Brooding Phase

The management practices on Emu farms were split into three phases i.e. brooding phase, growth phase and laying phase. Following are the practices adopted by the selected respondents in the management of emu farms during brooding phase (Table 19).

All the selected farmers of group I and II followed artificial brooding. Brooding in small group was preferred by 94 per cent of the farmers in group I and 100 per cent in group II. Community brooding was preferred by a very negligible number of farmers. Floor system of brooding was adopted by all the selected farmers of both the groups. About 98 per cent of the farmers of group I and 80 per cent of the farmers of group II preferred electrically operated brooding. This was the most common practice in the area under study. Looking at the brooder space 4 sq ft/bird it was provided by 84 per cent of the farmers of group I, while 100 per cent of group II farmers followed the same practice. This is the recommended brooders space and all the farmers of group II were found to follow this norm. All the farmers of group I were not very specific regarding following the required brooders space and that was the reason of finding 16 per cent of the group I farmers allotting a brooders space of less than 4 sq ft/bird. That preferring permanent brooder house was 86.66 per cent in group II and 58 per cent in group I. About 42 per cent of farmers of group I to preferred the temporary brooders house.

Linear metallic feeders were preferred by 100 per cent of the farmers in group II, while 82 per cent of group I farmers opted for these feeders. The preference for circular metallic feeders was more driven by the cost factor as each circular metallic factor was priced at Rs. 100 against Rs. 350 in the case of linear metallic feeder. Waterers were of circular metallic type in almost all farms except two farms of group I. All selected farmers of both the groups were strictly adhering to the vaccination schedules as recommended. Deworming was practiced sincerely by all the selected farmers. The managemental practices followed by the selected farmers during the brooding phase were in accordance with the managemental practices suggested by Davis (1997).

Mortality was relatively less in farms of group II compared to farms of group I. Location of the farms nearer to the highways and the resultant pollution, rearing birds in mango orchards, coincidence of brooding time with the pesticide spraying schedules of mango orchards might have contributed to higher mortality. This coincides with the findings of Kent (2003), that chick mortality should not be more than 7-12%.

Grower Phase

The particulars presented in Table 20 reflect the management practices adopted by selected farmers during grower phase.

Semi-intensive system was the common system of housing followed in the selected area as all the farmers adopted it. Preferred floor space of 60-100 sq.ft/ bird was religiously followed by all the farmers of group II, while 84 per cent of group I farmers followed this space.

All the farmers with out exception followed feeding a balanced ration and all of them preferred commercial ration. The farmers were yet to start owning feed mixing plants and prepare home-made rations. It may take some more time for the farmers before they start realizing the benefit associated. Vaccination schedules and de-worming were followed scrupulously by all the farmers. Mortality was less than 5% in farms of group I while it was little more in farms of group II. The reason explained earlier for higher mortality on farms of group I hold well here also.

Laying Phase

Management practices pertaining to laying phase are presented in Table 21. Normally egg laying in emu farming commences during the age of 18 to 24 months. About 64 per cent of group I emu farms recorded egg lying from 18 months, while in group II farms, it was 73.33 per cent. The first egg was laid between 18-20 months with 36 per cent of group I farms and 26.66 per cent of group II farms. On the whole, the first egg was laid within 18-24 months which is normally found in emu farming. Regarding the maximum age of rearing, the response of the farmers was that they would retain the layers up to 18 to 20 years. As far as the egg production is concerned, 62 per cent of the group I farmers recorded more than 10 in the first year, while 60 per cent of the group II framers recorded the same. About 74 per cent of group I farmers and 53.33 per cent of group II farmers recorded more than 15 eggs in second year. Nearly 84 per cent of farmers of group I and 66.66 per cent of other group farmers had recorded more than 25 eggs in the third year of production. About 78 percent of group I farmers and 86.66 per cent of group II farmers achieved average egg weight of 500 gms in the first year and the percentage of farms recording average egg weight of 500-700 gms in group I and group II was 84 and 80 respectively. These are the normal values of egg weight expected in emu farming as reported by Romanoff and Romanoff (1989), Burley and Vadehra (1989), Brake *et al.,* (1993), Scott (1993), Minnar and Minnar (1993), Deeming *et al.,* (1994), Danczak and Majeswka (1999), Majewska (2001), Menezes *et al.,* (2001) and Nagabushana Rao *et al.,* (2005).

All the farmers made it mandatory to properly clean the eggs before incubation. On the advice of the veterinary consultants this practice is adopted by the sample farmers. The same was opined by Davis (1997) that dirty eggs should be cleaned with sand paper before setting in incubator.

Semi confinement was the system in practice as reported by all the selected farmers. All the farmers of group II and 72 per cent of group I adopted a floor space of 100 sq.ft/birds. About 28 per cent of the group I farmers provided floor space of less than 100 sq ft/bird. The % fertility was 60-80% in 68% of group I farms and 86.66% of group II farms. The % hatchability for fertile eggs set was 60-70% in 88% of group I farms and 93.33% of group II farms. The % hatchability for total eggs set was 60-80% in 84% of group I farms and 86.66% of group II farms. The values reported in the farmers in a study a little bit higher than the values reported by Nagabhushana Rao (2005). The reason might be the general area that was allocated for emu farming by these farmers. Feeding commercial feeds was preferred by all the emu farmers. The parameters like percent fertility, percent hatchability for fertile eggs set and percent hatchability for total eggs set were relatively better for group II farms over group I farms. The obvious reason was that group II farmers since had more pairs of emu birds could quickly go for incubation as they had sufficient eggs at regular intervals compared to group I farmers, who had to wait to get sufficient number of eggs before they proceeded for incubation. The managemental practices during grower phase and layer phase farmers in a study were as per the recommendation of Davis (1997).

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