Study of the Effect of Feeding Sal (Shorea Robusta) Seed on Maintenance of Guinea Fowls

By

DR. S. B. TRIPATHY* AND DR. L. N. ACHARJYO**

Sal (Shorea Robusta) seed is available in large quantities in sal forest areas of India as forest waste. Recently, the use of sal seed as animal & Poultry feed has drawn considerable attention due to its cheapness and ready availability. The chemical analysis of sal seed has been done by Ramamurthy *et al.*, 1966 (Table 1), Bose, 1966 and Panda and Pradhan, 1967. Nayak *et al.*, 1967 in their preliminary trial used decorticated sal seed meal upto 5% in chick ration as a substitute for maize without any harmful effect and was found to be economical. Mohanty *et al.*, 1968 used decorticated sal seed meal upto 5% in grower ration without any undesirable effect.

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Guinea fowls are maintained in zoo generally for show purposes. Due to high cost of feed ingredients, feeding standard poultry ration to such birds in zoo is rather costly. With the idea to make such feeding economical, a trial was conducted to see the effect of feeding decorticated sal seed meal on the maintenance of a batch of Guinea fowls in (Nandan Kanan) State Biological Park of Orissa.

Materials and Methods :—

The Guinea fowls at 'Nandan Kanan' were being maintained on the adult poultry ration (Table 2).

TABLE 1.

Chemical composition of sal seed meal, %

Moisture	5.23
Protein	6.16
Ether Extract	16.77
Crude fiber	4.81
Nitrogen free extract	63.25
Sugars	1.88
Starch	28.80
Ash	3.78
Acid soluble ash	2.83
Acid Insoluble ash	0.95
Calcium	0.18
Phosphorus	0.16
Metabolisable Energy, cal/kg. of dry matter	2937

(Calculated as per methods of Sibbald *et al.*, 1963)

TABLE 2

Composition of Adult Poultry Ration, %

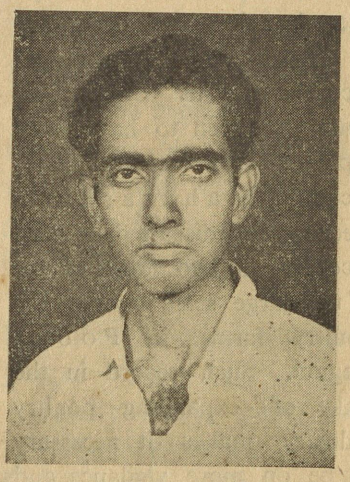
Maize	27
Damaged Rice	7
Dried Brewer's grain	2
Rice Polish	5
Rice Bran	28
Wheat Bran	5
Decorticated G. N. oil cake	15
Fish meal	6
Bone meal	1.5
Mineral mix	2
Hard grit	1
Salt	0.5
T.M. 5	200 gms.

In the present trial 24 adult Guinea fowls (Pearl breed—aged about more than one year) were divided equally into 3 groups, each group consisted of 4 male and 4 female birds. Group I received the adult poultry ration. Group II received a ration consisted of 90% adult poultry ration plus 10% decorticated sal seed meal and Group III received the ration consisted of 80% adult poultry ration plus 20% decorticated sal seed meal. The ration was supplied to each group once daily in the morning @ 80 gms. per bird. Green grass and water were supplied ed lib. The birds were confined to their cages throughout the trial period of 21 weeks.

Weight of the birds were taken as a group at the starting of the trial and subsequently at one week interval till 21 week. Any abnormalities in the behaviour of feeding and health of birds were recorded.

Result and Discussion

There appeared to be no difference between the feed consumption in different groups as practically no left over of feed to next day was observed.



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(Continued on page 9)

A Recent Record of Fowl Cholera at one Cooperative Poultry Farm in Maharashtra*

By

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Fowl cholera has always been thought of rare occurance in India. Only sporadic records of this disease in poultry are seen to have been reported from many states including Maharashtra. Recently this disease has been recorded in two flocks of one of the large scale cooperative poultry farms in Poona Region. Such record in the wake of expanding poultry industry makes it necessary to be on more vigilance and look out for this dreaded disease.

Flock History :

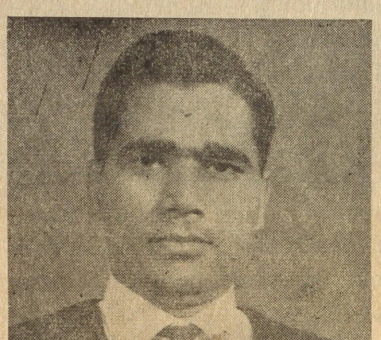
A low grade but continuous mortality accompanied by low egg yeild triggered by heat and picking stresses, was reported in two layer flocks, in about 9th to 10th month of production. Before death birds were seen ill for 2/3 days with dropping of the wings soiled vent, ruffled feathers and cyanosed combs. Occasionally birds were seen dead in the morning without evincing any symptoms.

Lesions :

In some cases petechial haemorrhages were seen on heart and on inner surface of breast bone. In some birds liver was seen enlarged with few to numerous yellowish foci. Spleen was seen slightly to moderately enlarged. Ova were seen misshapen or congested and flakes of yellowish cheesy material in abdominal cavity were seen in majority of the cases. In some birds varying degree of lung and intestinal congestion was also noticed.

Diagnosis :

Cultural examination of heart blood, liver tissue, ova material and yellowish chessy flakes in abdominal cavity consistently revealed bacterial growth on plain agar and in broth ; while no growth was seen on MacConkey's medium. Similarly flakes from abdominal cavity taken in Selenite broth when further sub-cultured on MacConkey's medium, did not yield bacterial growth. The organisms when stained with Gram's staining were seen to be coccobacilli. With the presumptive diagnosis of Fowl Cholera, when the culture was inoculated in mice and rabbits they died within 24 hours with fatal septicaemia, rabbits showing typical haemorrhagic tracheitis. Out of four cocks of about 9 months age injected subcutaneously with the culture, 2 died within 48 hours, Pigeons died within 24 hours to 82 hours with sub-cutaneous inoculation. In one cock in which intra-peritoneal inoculation was given, typical liver lesions came up as seen in natural cases and the bird died in 24 hours. In all these cases, bipolar staining organisms could be seen and isolated from heart blood and internal organs as liver and spleen. In one of the cocks, in which sub-cutaneous injection was given and which died in 48 hours, slight swelling of the hock joint was noted and bipolar organisms were seen and isolated from sinovial fluid. Besides this, an interesting characteristic lesion noted was extensive necrotisation in muscles at the site of injection with the isolate in all the species mentioned above. Organisms could be isolated with ease from necrotic tissue.



Mr. M. A. Babras, obtained his degree in Science from Osmania University, Hyderabad in 1952 and completed his post graduation from Bombay Veterinary College, Bombay in 1962. He had obtained a training in Poultry Pathologist at Indian Veterinary Research Institute Izatnagar.

The isolate was confirmed as 'Pasteurella multocida' by authorities from Armed Force Medical College, Poona. For serological typing the isolate has been sent to the Head of the Divn. of Bacteriology and Virology, I.V.R.I. Mukteswar. The isolate was also made available to Dr. S. Kumar of I.V.R.I. Izatnagar as desired by him for further studies.

Control Measures :

Measures carried out at the cooperative poultry farm, for control and eradication of the disease are given below. Mortality did come down in the affected flocks. So far no recurrance of the disease is detected in any other flock during last one year.

Managemental Practices

1. The affected flocks were depopulated after about 2 months as they were already nearing liquidation. After removal of the birds the litter was immediately removed, and the houses were thoroughly cleaned and disinfected.

2. Efforts were strengthened for chick brooding and pullet rearing in strict isolation.

3. Before depopulation, constant culling was practised so as to remove birds which otherwise might have harboured and perpetuated the infection.

4. Dead and sick birds used to be quickly removed being heavily saturated with disease organisms.

5. All dead birds from routine mortality were thoroughly burnt and the practice continued thereafter.

Treatment :

1. Broad spectrum antibiotic was given to the affected flocks at curative level.

2. Embasin premix was added in chick mash and further continued in grower mash for 2-3 weeks, after which grower flocks were protected with vaccine.

It is well known that sulpha drugs are very effective against fowl Cholera.

Vaccination :

Dr. S. G. Dixit, Dy. Director, Institute of Veterinary Biological Products, Poona-7, very kindly prepared fowl Cholera vaccine out of the local isolate and about 14000 growers and adult birds were then protected with that vaccine, at the said cooperative poultry farm.

As no recurrance of the disease occured at the farm, no re-vaccinations were undertaken.

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* (Published in Catalogue of Maharashtra State Poultry Association 34th Annual Poultry Show—1969.

Study of the Effect.....

(Continued from page 5)

At the beginning of the experiment (about 2 weeks) birds receiving 20% sal seed meal with adult poultry ration showed some disinclination to consume the entire feed quickly. It took them about 10-12 hours to consume the entire feed where as birds of the other two groups consumed their feed in about 6-8 hours time. However, subsequently, these birds also started consuming feed as readily as others.

Weekly weight record data (Table 3) indicated that there was not much difference between the average weight of individual bird in any of the groups. This signifies that the sal seed meal had no harmful effect in the proportion which was used in this trial.

TABLE 3

Weekly weight record data (average weight per bird) kg.

Date of weighment	Group I	Group II	Group III	Remarks
20.2.69	1.46	1.41	1.35	Start of the trial
27.2.69	1.44	1.41	1.25	
6.3.69	1.42	1.38	1.29	
13.3.69	1.42	1.41	1.29	
20.3.69	1.43	1.46	1.35	
27.3.69	1.41	1.39	1.33	
3.4.69	1.47	1.44	1.32	
10.4.69	1.47	1.41	1.35	
17.4.69	1.46	1.40	1.34	
24.4 69	1.45	1.40	1.32	
1.5.69	1.45	1.41	1.32	
8.5.69	1.49	1.40	1.30	
15.5.69	1.48	1.41	1.32	
22.5.69	1.49	1.41	1.32	
29.5.69	1.49	1.42	1.34	
5.6.69	1.48	1,42	1.35	
12.6.69	1.49	1.40	1.34	
19.6.69	1.48	1.40	1.33	
26.6.69	1.49	1.40	1.35	
3.7.69	1.48	1.41	1.34	
10.7.69	1.49	1.40	1.34	
17.7.69	1.48	1.42	1.35	

Group I—received adult poultry ration.

Group II—received adult poultry ration 90% + sal seed meal 10%.

Group III—received adult poultty ration 80% + sal seed meal 20%.

Feeds were given @ 80 gms. per bird once daily.

Only one female bird of Group I (control) died after 12th week of the trial due to fighting with other birds. No any other abnormalities were seen in birds of any other groups.

Guinea fowls are poor egg layer about 20-30 eggs per year. (Winter & Funk, 1960). Thus, the study was oriented to see the effect of feeding sal seed on the maintenance of the birds and results obtained was quite satisfactory nutritionally. Taking the cost of decorticated sal seed meal as Rs. 30/- per quintal (as it cost to us) and the adult poultry ration as Rs. 64/- per quintal, the sal seed substituted feed was also found to be cheaper by Rs. 6-80 per quintal.

Summary

A trial was conducted to study the effect of feeding sal seed on the maintenance of the adult Guinea fowls in State Biological Park of Orissa. The trial was for a period of 21 weeks during February to July, 1969. There appeared to be no difference between the weight, maintenance of health, mortality, palatability of the feed etc. even when fed with a ration containing 80% adult poultry ration plus 20% decorticated sal seed meal. The Experimental feed was also found to be cheaper by Rs. 6.80 per quintal, as compared to standard poultry feed.

In view of the above facts, the authors believe that other varieties of zoo fowls can also be fed with sal seed meal substituted feed (after ascertaining the safe level for each spp) to make their maintenance economical.

Acknowledgement :—

The authors wish to express their sincere gratitude to the Wild-life Conservation Officer, Orissa, Cuttack and to the Dean, Faculty of Veterinary Science & Animal Husbandry, Orissa University of Agriculture and Technology, Bhubaneswar-3, for their kind advice to undertake this trial.

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CONSUMERS' CORNER

Cheese omelette with croutons :

Cooking time 5-6 minutes,

You will need for 2 servings :

1 slice bread
Butter
3 eggs
salt, pepper
2 tablespoons water
2 tablespoons grated cheese

1. Cut crusts from bread and dice it. Fry in butter till crisp and golden brown, then remove from pan and keep hot.

2. Beat eggs with seasoning and water.

3. Add a little more butter to the pan if necessary and, when it is hot, pour in eggs and cook the omelette in the usual way.

4. When it is just set underneath, add croutons and cheese.

5. Fold omelette over and slide on to a hot dish.

Curried Eggs :

Cooking time about 1 hour

You will need for 6 servings :

for the sauce :—

4 oz. onions
1 tablespoon mango chutney
2 oz. butter —
1 tablespoon brown sugar
½ lb. cooking apples—
1 oz. sultanas
2 tablespoons curry powder—
2 tablespoon lemon juice salt, Cayenne pepper
1 can tomato juice, made up to ½ pint with water—
6 oz, Patna rice
6 hard-boiled eggs

1. Peel and slice onions thinly
2. Heat butter, add onions, cover and saute gently for about 10 minutes
3. Add apples, peeled and chopped, and continue to saute a further 10 minutes
4. Add carry powder, mix in well and cook for 5 minutes.
5. Add all other sauce ingredients, cover and simmer gently, for about 30 minutes, stirring occasionally
6. Cook rice in boiling salted water for 12 minutes or until tender, Drain, rinse in hot water
7. Pile rice on to a hot dish, halve eggs and arrange on top. Correct seasoning of the sauce and pour over the eggs.

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are dealt with by return of post. There is no fee for the advice given, but a stamped self addressed envelop should be forwarded with the enquiry. Details of management related to the problems should be given.

Q. What is the meaning—"Reddening up to lay" ? When the appearance of a bird changes to it

Ans. This is purely a technical term used in Poultry Science. When the comb of a bird starts to enlarge and become red—known as "reddening up to lay". It is generally visible about three weeks before the bird start laying first time. This brightness and red colour of the comb disappear about a week before she stop-laying.

Q. So long I have been using a certain brand of feed, as its conversion ratio is not satisfactory, I want to change the brand. Will this change be detrimental to the layers ?

Ans. A drastic or sudden change over a feed is not at all diserable as it will have an adverse effect on birds' feed consumption habit. This change over should be done slowly and gradually. At first mix a minimum quantity of the new brand of feed with the old one and gradually increase the amount of new mash until the full change over is complete. This change over should take at least three weeks of time.

Q. How egg within an egg is found.?

Ans. This is generally formed when due to some physiological strain the egg is pushed backward into the oviduct instead of coming forward. It is then stimulate the epitheial layer to screat the white or albumen in the outer egg. As a result, no yolk is found in the outer egg.

Q. Why lime stone grits or oyster shell grits are provided to the birds ?

Ans. Lime stone dust or oyster shell grits are given to birds as calcium supplement. Calcium is necessary for the formation of bone and egg shell. It also helps in clotting of blood and maintains contraction of heart and its rythemicity. The annual requirement of lime stone dust or oyster shell is about 2 to $2\frac{1}{2}$ kgs. per bird.

Q. So long I was continuing to keep my birds under semi-intensive system. I want to convert my farm into deep litter houses and have made the necessary houses. What material shall be economic and proper to use as litter in the houses ? How shall I use it ?

Ans. There are several kinds of materials that may be used as litter depending on price and availability. Some of the mentionable materials are wood shavings, saw dust, crushed maize cobs. Chopped straw is popular as litter material in West Bengal.

The litter should be cut about $1\frac{1}{2}$ inches long and put an inch deep for chicks the first week. Add about an inch of new litter every week or so until a depth of 6 to 8 inches is reached. The litter must be kept loose and dry at all times, by thoroughly stirring it once or twice weekly. Unless it becomes wet and caked, it need not be replaced for a year.

Q. How important is egg transmission of leukosis ?

Ans. Egg transmission of leukosis virus does occur. The role of such egg transmission varies with : 1. infection level in parent stock. 2. immunity level in parent stock. 3, contamination level in rearing environment. 4. other as yet unidentified factors in environment. Egg transmission *per se* does not appear to be the determinant of level of tumor loss.

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Reariability of chicken....

(Contd. from p. 8)

Tin sheet or tile or thatch by straw or like objects. The last named one has greatest insulating character but is discouraged only because of its inflamability. But that is not valid around for rejecting a thing. If other objects are used one should provide good ceiling.

The house need have a big door to let the materials such as brooder and other things get in. This things are often neglected by new commers, as they do not feel the import of all these. Therefore they invite troubles. It should be remembered that nothing is insignificant to escape the attention of the farmer.

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Egg weight of some kinds of Zoo Birds

By

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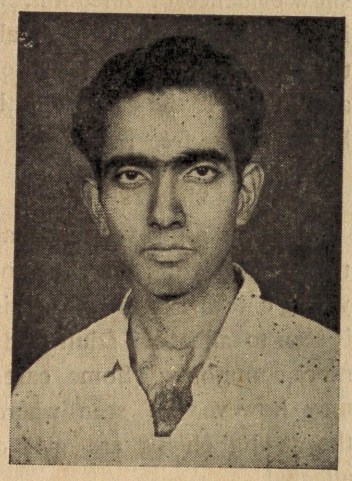
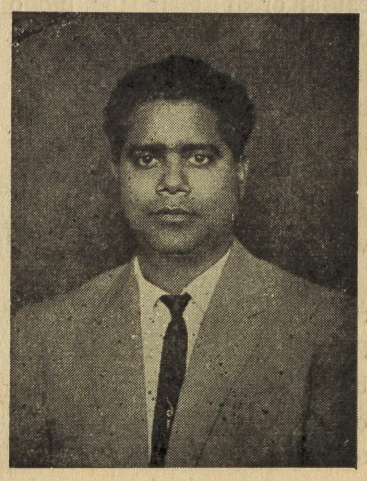


Dr. L. N. Acharjyo

Table showing the details of the egg weight

Sl. No.	Kind of Bird	No. of eggs weighed	Minimum weight (grams)	Maximum weight (grams)	Average weight (grams)
1.	Common Domestic Goose	30	159.000	85.300	142.253
2.	Common Pea Fowl	39	125.100	97.800	111.251
3.	White Pea Fowl	9	113.500	91.000	104.978
4.	Guinea Fowl	58	47.500	39.800	45.216
5.	Silver Pheasant	6	46.250	42.200	44.375
6.	Grey Junge Fowl	17	33.100	26.800	30.677
7.	Pigeon	48	21.500	12.900	17.049
8.	Budgerigar	62	2.200	1.200	1.843



Dr. S. B. Tripathy

It is generally agreed that size and weight of egg is an indication of the size of the bird which has laid. However, there are exceptions to it. Ostrich's egg measures about 6 to 8 inches long and weighs upto 3 lbs., but it is surprising that it is considered the smallest of all so far the egg size is concerned to the body size of the ostrich (Guggisberg, 1964).

There are not very many reports regarding the egg weight of different zoo birds. With the idea to know egg weight and to satisfy the common querries of the interested people, egg weight of 8 species of zoo birds have been recorded from 1.11.69 to 16.6.70, in the State Biological Park, (Nandan Kanan), Orissa. The results of the study has been summarized in the following table printed above.

Acknowledgement

The authors are thankful to Wild Life Conservation Officer, Orissa. for his kind advice and facilities provided.

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Common poultry····

(Contd. from p. 3)

is high reaching 95-100% in young chicks.

Diagnosis :—This can be done by demonstration of the causal organism in the blood of the suspected bird, but it has to be remembered that the organisms may not be seen in the blood after the death of the birds. Blood smears should therefore be prepared when the bird is alive.

Another way to confirm the diagnosis is to conduct P.M. examination of the dead birds. In the proventriculus of a bird dead of Spirochaetosis can be seen linear haemorrhages in between the summits of the glands.

Treatment :— Following arsenical preparation were commonly used in this conditions and were found quite efficacious.

(*a*) *Soamine* :—1-2 c g m in 2—3 cc of distilled water given intramuscularly.

(*b*) *Sulpharsenol* :—2-3 cgm in distilled water g i v e n intramuscularly.

Usually one injection cures the birds but in some cases it may be necessary to repeat the drug.

Now a days penicillin is preferred to the arsenical preparations and this also gives very satisfactory r e s u l t s. 15,000 I. U. of penicillin are injected 1/m for 2-3 days.

Prevention :—It is preferable to prevent the disease from entering into a flock. For this purpose the following steps are taken.

(a) Free all the poultry houses of ticks, Malathion spray is used over the litter, walls and roof of the houses. This may be repeated after a month.

(b) Rub gammexane on the birds to kill the ticks. Provision of a dust bath containing gammexane is also advocated.

(c) Vaccinate the birds with spirochaetosis vaccine. The dose is 1 cc. given I/m and it gives immunity for 15 months. This vaccine is being manufactured at I.V.R.I. in India.

B. Fowl Cholera

This is another septicaemic disease of fowls which can cause heavy mortality. It is seen in acute, sub-acute and chronic forms. In addition to fowls this disease is also seen in turkey, duck, and geese and pigeons.

This condition is caused by Pasturella avicida a bipolar organism. The infection is spread by contact-both direct and indirect. In recovered birds the organisms inhabit the upper respiratory tract and when the resistance of such "carrier" birds in reduced these organisms are shed, setting up sudden appearance of the disease in a healthy flock.

Symptoms :—The period of incubation is 12 hrs to 3 days. In acute cases no specific symptoms are seen. Healthy birds are seen to fall or stumble and struggle for a while before they are dead.

In the sub actue cases the temperature is high (110°F), the head is lowered appetite is lost and thirst is increased. From the nares and the beak flows thick mucus. The birds breath through the open beak and rattling sounds are heard at each respiration. These causes usually and fatally.

In the chronic form is observed anaemia, emaciation a n d persistant diarrhoea. Lameness is seen in some cases accompanied by appreciable swelling in joints due to formation of cold absesses. Such lesions may also be seen in the comb and wattles when it is also referred to as "Wattle Disease". C h r o n i c cases usually recover.

The adult birds usually suffer from a chronic form of the disease and do not show any of the above symptoms. These and the surviving young chicks become carriers of the infection and eggs laid by such birds are infected

On conducting post mortem examination of the dead chicks one finds neerotic foci or nodules in the liver. caeca, gizzard. heart and lung etc. Isolation of t h e causative organism in possible f r o m these foci. In the chronic carriers the changes are confined to the ovaries. the ova are degenerated, misshaped and reddish in colour.

Diagnosis :—This is not difficult to be done. H i g h mortality in chicks with white pasty diarrhoea is clearly indicative of this disease.

An agglutination test is also available for the detection of this disease in flocks. The test can be carried in any flock on the spot by using the blood of suspected birds or chicks and mixing it with a coloured antigen. The test can also be run in a laboratory by using serum of birds and plain antigen when the infection titre can be read. A titre of 1 :40 or 1:50 is a positive titre.

Treatment : The treatment is not successful. Moreover, it is advisable t o attempt eradication of t h e disease rather than cure it ; as the birds which recover as a result of the treatment become carriers and eventually help in perpetuation of the disease in a flock. The following steps are adopted to achieve this end.

(i) Periodical testing of all birds in a flock by the agglitination test and disposal of t h e reactors by slaughter should become a rule. Testing should be done each month till all the birds b e c o m e negative on atleast 3 consecutive tests.

(ii) Breeding should be done from known negative birds only.

(iii) Sanitary precautions regarding the feeding, watering and cleaning of the house should be intensified.

(iv) The incubators used for custom hatching of eggs should be properly disinfected after each use. Use of formaldehyde gas is the b e s t disinfecting a g e n t for an incubator.

(v) As far as possible visitors should not be allowed in the hatchery or brooder houses.

(vi) If majority of the birds show evidence of infection, it is advisable to dispose off all the birds, disinfect the premises and restock the house with kown disease free flock.

D. Fowl Typhoid

This disease is very similar to Bacillary white diarrhoea of young chicks except that this is seen to affect the adult birds more commonly. Some cases may however be seen where the young chicks are a l s o affected.

It is s p r e a d caused by Salmonella gallinarum an organism which closely resumbles Sal. Pullorum the cause of B.W.D.

Symptoms :—T h e disease may appear in an acute or chronic form. In the acute form the birds are drowsy ; dull ; huddled together, the feathers are ruffled and the wings are drooping. The birds pass watery greenish coloured dropping and lose physical condition. The temperature of the birds is higher than normal, the thirst is increased. The comb and wattles appear p a l e r and sprivelled up. Course of the disease is usually a week. The mortality is low.

In the chronic form the birds usually do not show any clinical symptoms.

In young chicks affected with fowl t y p h o i d the symptoms closely resemble those seen in B.W.D.

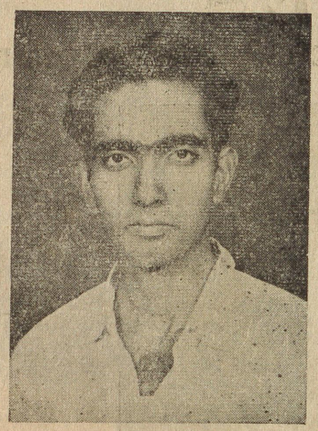
On conducting P.M. of a dead bird, there is evidence of enlargement of t h e liver a n d spleen. These organs appear studded with numerous

(Contd. on p. 8)

Live Weight of Some Kinds of Zoo Birds

By

Dr. L. N. AHARJYO* & Dr. S. B. TRIPATHY**



Dr. L. N. Acharjyo

Maintenance of birds is an integral part of any zoo. Generally many types of birds, i.e. from smallest bird like Munia to the largest bird like Ostrich, are being maintained in Zoological Parks It is the duty of veterinarian to maintain them in optimum health. In many cases it is not very much practicable to handle for weighment very frequently due to the delicate nature of zoo birds. Thus, often Veterinarian face quite a bit of trouble in computing drug doses for maintaining them in healthy condition. Therefore, it was thought to have an idea about the weight of different kinds of birds for successful treatment and prevention of disease

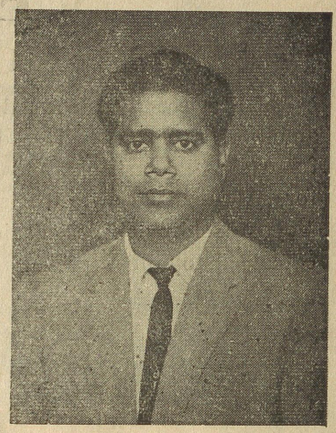
The Ostrich (male) which is the largest of all the living birds weigh more than 300 lbs., Rheas weigh up to 50 lbs. and Emu weigh upto 120 lbs. (Austin & Singer, 1961). Here an attempt has been made to record the live weight of some kinds of zoo birds maintained at 'Nandan Kanan' (State Biological Park, Orissa) during July, 1970. Large birds were weighed with either spring balance or ordinary hand scale and small birds like munia, budgerigars etc. were weighed with a dispensing scale. All healthy adult birds have been weighed to find out the average weight which is recorded below :-

Acknowledgement

The authors are thankful to the wild-life Conservation Officer, Orissa, Cuttack, for providing necessary facilities and encouragement.

References

Austin, Oliver L. JR. And Singer, Arthur Edited by Zim, Herbert S. (1961)—Birds of the World, Golden Press, New York.



Dr. S. B. Tripathy

Sl. No.	Name of the bird	No. of birds weighed.	Maximum weight.	Minimum weight.	Average weight.
			In Gram.	In Gram.	In Gram.
1.	Spotted Munia	15	15.400	13.500	14.687
2.	Budgerigar	10	36.300	24.000	30.550
3.	Common Quail	5	81.200	70.800	75.280
4.	Roseringed Parakeet	4	134	121	128
5.	Hill Myna	2	195	145	162.890
6.	Alexandrine Parakeet	2	205	196	200
7.	Crow Pheasant	1	—	-	288
8.	Koel (Female)	1	—	—	206
9.	Red Spur-Fowl	1	—	—	267
10.	Pigeon	30	457	320	388
11.	Lesser Whistling Teal	1	—	—	500
12.	Paddy Bird	2	500	500	500
13.	(a) Grey Jungle Fowl (Hen)	6	900	500	625
	(b) Grey Jungle Fowl (Cock)	2	1000	900	950
14.	Dabchick	2	750	750	750
15.	Ring-Necked Pheasant (Male)	1	—	-	900
			In Kg.	In Kg.	In Kg.
16.	Silver Pheasant (Female)	1	—	—	1.000
17.	White Ibis	3	1.000	1.000	1 000
18.	Black Ibis	1	—	—	1.250
19.	Brahminy Duck	3	1.250	1.000	1.166
20.	Grey Heron	4	1.500	1.500	1.500
21.	Openbilled Stork	1	—	—	1.500
22	Guinea Fowl	16	2.100	1.300	1.594
23.	Demoiselle Crane	2	2.250	1.750	2.000
24.	Common Crane	1	—	—	3.500
25.	Painted Stork	4	3.500	2.250	2.812
26.	White Stork	1	—	—	3.250
27.	Blacknecked Stork	1	—	—	4.250
28.	Adjutant Stork	6	6.000	3.750	4.542
29.	Turkey (Hen)	1	—	—	2.750
30.	Common Peahen	3	4.000	3.500	3.750
31.	Indian Great Horned Owl	1	—	—	1.750
32.	Domestic Goose	11	4.500	2.500	3.318
33.	Barheaded Goose	4	2.500	2.250	2.312
34.	Black Swan	2	5.000	4.500	4.750
35.	Sarus Crane	5	8.500	5.750	6.900
36.	Rosy Pelican	4	8.000	6.500	7.437
37.	Great Indian Hornbill	2	2.750	2.500	2.625
38.	Malabar Pied Hornbill	1	—	—	0.750

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NEWS IN PICTURES

ARIES—YOLK-O-GOLD

ARIES recently celebrated the first anniversary of their ambitious venture. The occassion was doubly significant for ARIES in particular and the Poultry Industry in general, for, it coincided with the launch of ARIES produce No. 2 Yolk-o-Gold. ARIES Managing Director, Dr. T.B. Mirchandani explained to those present that Yolk-o-Gold is the perfect

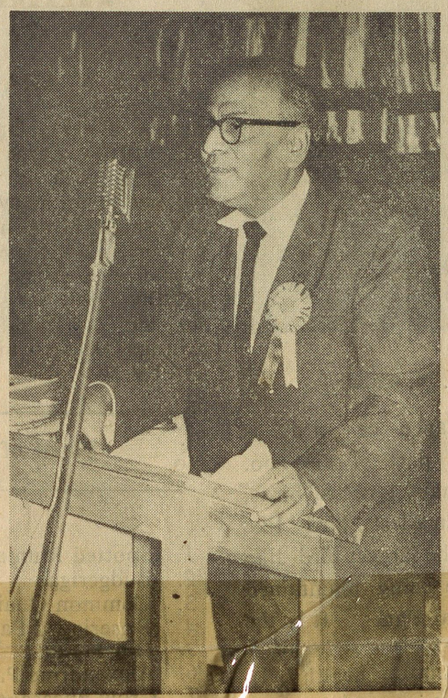
answer to the Fish Meal Scarcity and inconsistent quality experienced by the Poultry Feed Formulator. 1% addition of Yolk-o-Gold with 4% Groundnut Cake replaces Fish meal at no extra cost. Further, Yolk-o-Gold solves the yolk pigmentation problem by reasonably guaranteeing golden yellow yolk in just 7 days.

Yolk-o-Gold, Dr. Mirchandani explained contains Vitamin A, B_2, D_3, B_{12} and essential Amino Acids like Lysine and Methionine. Vitamin K has been added to prevent excessive bleeding due to cecal coccidiosis and a milk tranquilizer to control excitability in hybrid and caged birds.

Yolk-o-Gold being a unique product, Dr. Mirchandani said, ARIES can expect it to become very popular with the Poultry Feed Formulator in a very short period of time.

Yolk-o-Gold is presently available in 50 kgs bags from the makers as well as their Distributors all over the Country.

VETERINARY COLLEGE POULTRY SEMINAR



Mr. F. N. Chatterjee, Former Joint-Director, Animal Husbandry (Poultry), Government of West Bengal, delivering an interesting talk on Poultry Farm Management-Technique for Economic Production in a Seminar on Poultry Production which was arranged by the Re-union Committee of Bengal Veterinary College in the second week of January, 1971.

In a seminar of the Thirteenth Re-union of Bengal Veterinary College on 11th January, 1971, Dr. Sankar Bhattacharjee read a paper on Scientific feeding for profitable Poultry Keeping.