

15th week, quantity of grower mash should be reduced and layer mash should be increased slowly in such a way that birds should get layer mash completely from 16th week of age.

Layer Management (21- 72 wks) : Layer birds will give maximum egg production if we provide required environment, balanced poultry feed, wholesome water and accurate management with scientific approach.



Management of layer birds in cage system : Design of cage: In cage layer house, cages are arranged in two to three tier in three to four rows. Single cage is having 20" front side length, 17.5" front side height, 15" back side height and 13" depth in which four layer birds can be reared by providing 65 square inch floor space per bird. Feeding equipment (feeder) is fitted in front of the cage, to provide 5" feeding space per bird. Similarly for watering, nipple drinker/water channel is arranged.

Transfer of birds from grower house to layer house : Grower birds should be shifted from grower house to layer cage house latest by 15-16 weeks of age before onset of laying.

Water and Feed Management: Layer birds should be provided fresh, clean, wholesome water continuously. To

avoid the deposit of algae in the nipple drinker, water line must be cleaned with water pressure at regular intervals. Cost of feed accounts for 70-75 % of total expenditure incurred, so poultry farmer is required to be alert for requirement of feed, quality, storage and feed wastage. Four category of feed is provided to layer birds during different age, i.e, Pre layer mash (17% Crude Protein; 2650 Kcal ME): 16-17 weeks of age. Layer mash I (18 % Crude Protein; 2650 Kcal ME & 3.8% Ca): 18-40 weeks of age Layer mash II (17% & Crude Protein, 2550 Kcal ME & 4% Ca):41-60 weeks of age. Layer mash III (16 % Crude Protein, 2500 Kcal ME & 4.2% Ca):61-72 weeks of age. Average feed consumption per bird /day during laying period should be 110-115 g.

Light management : At housing time of 16 weeks, total 12 hours light must be given. When day light is 11 hour, it should be supplemented with 30 minutes in morning and 30 minutes in evening with extra light. Every week, light duration should be increased with increment of 30 minutes till it reaches to total 16 hours of lighting.

Health Management : As per the prevalence and incidences of the occurrence of various diseases in locality of poultry farm, vaccination programme should be formulated as per the guidance of poultry expert and should be strictly followed. Disinfection should be done at regular interval for biosecurity purpose. Dead birds should be disposed off immediately by deep burrying or burning.

Record Maintenance : Accurate and regular recording of important aspects are the backbone of poultry business. i.e. feed, mortality, sell, livestock, medicine, vaccine, labour, electricity, water etc. Cost of egg production can be estimated by use of important records and profit or loss of poultry business can be calculated.

Vaccination Schedule*

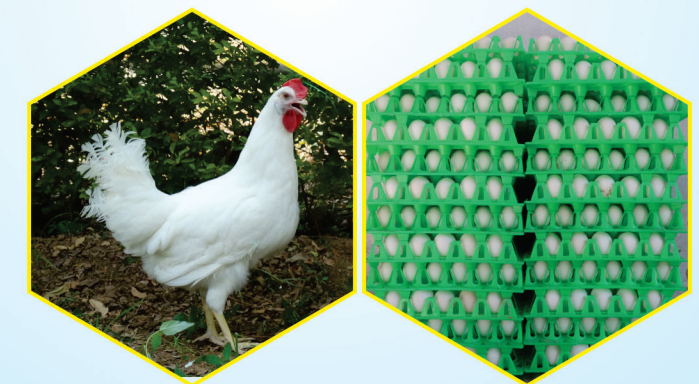
Name of Diseases	Vaccine / Strain used	Age (Days)	Route
Marek's Disease	HVT + SB ₁	Day old	S/C
Infectious Bronchitis	IB H-120	Day old	Beak Dipping
Ranikhet Disease	B1 / F ₁ / Lasota	7	I/O or I/N
Infectious Bursal Disease	MB Strain	14	I/O
Infectious Bronchitis	Mass type	16	I/O
Infectious Bursal Disease	MB Strain	24	Drinking water
Ranikhet Disease & Infectious Bronchitis	Mass. Type + Lasota	35	Drinking water
Fowl Pox	Pox Virus	49	I/M or Wing web
Ranikhet Disease	R ₂ B	63	I/M
Infectious Bronchitis	Mass Type	98	Drinking water
Ranikhet Disease & Infectious Bronchitis	ND + IB (killed)	112-119	I/M
	Lasota		Drinking water
Ranikhet Disease + Infectious Bronchitis + Infectious Bursal Disease	ND + IB + IBD (killed)	280	I/M
	Lasota		Drinking water
Ranikhet Disease	Lasota	Repeated at 8 week interval after 40 wk	Drinking water

* Vaccination schedule can be modified according to prevalence of disease in particular area as per the advice of poultry expert.

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Anand Commercial Layer



Anand Agricultural University
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Anand Agricultural University has developed high egg producing poultry strain cross "Anand Commercial Layer" for commercial poultry farming.

Anand Commercial Layer :

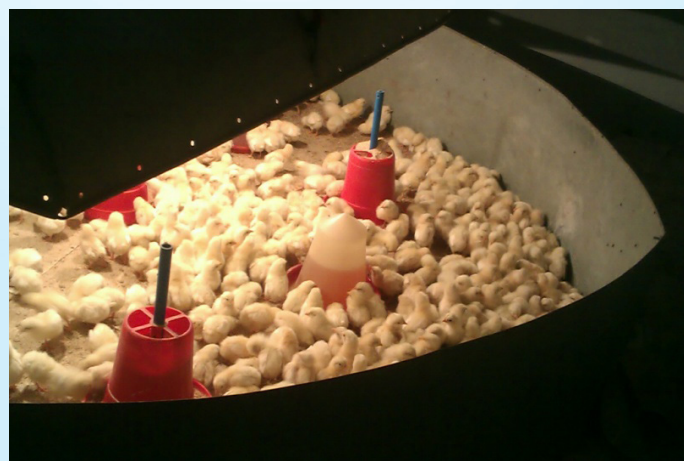


Economic Traits :

Average age at first egg (Days)	142
Average annual egg production (No.)	300
Maximum egg production (%)	95
Average egg weight (g.)	52
Layer house mortality per month (%)	< 0.5

Chick Management (0-8 weeks) : Body temperature of chicks is 103-104 °F. Feathers as well as thermoregulatory system are not developed in initial stage of life of chicks. Therefore, to maintain body temperature of chicks, artificially heat is to be provided to chicks which is known as "Brooding" and the equipment used for that is known as "Brooder".

Deep Litter Brooding : In deep litter brooding, chicks are



being reared on floor with bedding material. Two watt light per chick is sufficient. Floor space of 15-20 sq.cm. per chick should be provided which should be slowly extended to 0.5 sq.ft. up to 4 week and 1.0 sq.ft. during 5-8 week of age. Total 250-300 chicks can be reared under brooder with dimension of 5' x 3'.

Cage(Battery) Brooding : In this system, chicks are being



reared in galvanized cage brooder (18" length x 18" depth x 15" height) with one or two or three tiers. Initially, 20 chicks can be reared in one cage brooder which should be reduced to 8 chicks during 7-8 weeks of age. Facilities of bulbs, feed and water is provided in cage brooder itself. Cage brooding is becoming popular as compared to deep litter brooding. In cage brooding, more number of chicks can be reared per unit floor space, incidences of diseases and mortality are less, feed efficiency can be improved and labour requirement is less as compared to deep litter brooding. Cage brooding is advantageous in long run but initial cost of cages is more.

Light Management : Looking to the atmospheric temperature, bulbs of brooder should be switched on before 10-12 hours of arrival of chicks to attain and to maintain 35° C (95° F) temperature under brooder. To maintain 35 °C brooding temperature, if needed, height of brooder as well as number and intensity of bulbs can be increased or decreased. From second week, brooding temperature should be reduced 2.8°C (5° F) per week so that at fifth week, it reaches to 24-25° C (75° F). At this age, artificial heat is not required because thermoregulatory system will be fully developed and functional as well as feathers are also developed on the body of chicks. So bulbs of brooder should be switched off but brooder should be kept as such at height which can be used if atmospheric temperature goes down. In case of electricity failure in brooder house, there should be an alternative arrangement for light and heat such as generator, room heaters, bukhari or gas brooders. During brooding period, frequent visit of brooder house and critical

observation of behaviour of chicks under the brooder is very much essential. Whether brooding temperature is optimum or not, that can be decided only by observing behaviour of chicks under the brooder i.e. (1) If chicks are together under brooder only, that indicates lower brooding temperature (2) If chicks are nearer to chick guards, that indicates higher brooding temperature (3) If chicks are uniformly distributed under brooder, that indicates optimum brooding temperature. Precautionary measures should be immediately taken in case of low or high brooding temperature.

Water and Feed Management : Fresh and wholesome water with addition of glucose, electrolytes and antistressor medicines should be provided in cleaned waterer under brooder before arrival of chicks. Chick mash should be offered on newspapers, cardboard or plastic trays after 4 to 5 hours of placement of chicks under the brooder. From second day onwards, chick mash should be offered in chick feeders only. Chick mash should contain 20-21% Crude Protein and 2900 Kilo Calorie ME/Kg feed. At the beginning of eighth week, quantity of chick mash should be reduced and grower mash should be increased slowly in such a way that birds should get grower mash completely from ninth week of age. During chick stage (0-8 weeks), feed consumption per chick will be 1650-1700 grams. Average body weight at the end of chick stage should be 550-580 grams.

Health Management : To maintain health of chicks, electrolytes should be given for first three days, antibiotics for first five days and vitamins for first seven days. Vaccination schedule should be strictly followed as per the guidance of poultry expert based on requirements of locality of poultry farm. Chicks are fighting among themselves (Cannibalism) because of various reasons. To prevent cannibalism, debeaking (cutting of beak) should be done during second week of age.

Points taken into consideration : Feeding, watering and floor space should be increased to 6 cm, 2 cm and 600-800 sq. cm. per chick, respectively, as age advances. During critical brooding period, uniform and optimum growth as well as minimum mortality in chicks are most important criteria to be monitored and achieved.

Grower management (9-20 weeks) : Future egg production, egg weight, egg quality, mortality and feed cost will be affected

by the grower management. If the birds are reared in the brooder cum grower house then space for feeding, watering and floor should also be increased as the age advances.:

Feeding, watering & floor space during grower stage (Deep litter system)			
Age (weeks)	Feeding space/bird (inch)	Watering space/bird (inch)	Floor space/bird (sq. ft.)
9-16	2	1	1.25 – 1.50
17-20	3	1.5	1.50 – 2.0

If grower birds are reared in grower cage (20" Length x 15" Depth x 17.5" Height), then five grower birds can be reared in one grower cage, so that 60 square inch floor space per bird will be available.

Water and Feed management : Clean, fresh & wholesome water should be continuously provided to the birds. Feed provided to the grower birds (grower mash) should contain 18-19% Crude Protein and 2800 Kilo Calorie ME/Kg feed. Feed consumption per bird will be 5.0 to 5.5 kilogram during 9-20 weeks of age. Average body weight at the end of 16th week and 20th week should be 1100-1150 and 1300-1350 grams, respectively.

Light management : Light stimulates the sexual maturity of birds. Early sexual maturity leads to early egg production and small egg size (pullet egg), which fetches very less price. In case of early sexual maturity, the incidence of uterine prolapse increases. So, only natural day light of 10-12 hrs/day is sufficient during growing stage.

Health management : Debeaking is required to prevent the cannibalism in birds reared in deep litter system. Second debeaking is done at the age of 10-12 weeks. Debeaking is also necessary to prevent the feed wastage and selective feeding. Coccidiostates are added in the feed to reduce the incidences of coccidiosis. Optimum litter management is essential to prevent incidences of coccidiosis and parasitic infestation. Deworming should be done at the interval of 4-6 weeks. Vaccination schedule should be strictly followed and before vaccination, anti-stressors should be given to the birds. Before the onset of laying, growers should be shifted to cage layer house for acclimatization. At the beginning of