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How To Start Manufacturing Industries

Egg Production

Introduction

Considering the specific value of the various components that make up the human food chain, the egg must certainly be credited with being one of the most important and versatile foodstuffs in itself. Hardly any other product of nature comprises as many nutrients, trace elements and vitamins.

The chicken egg contains 25 different nutrients and trace elements and 14 vitamins essential to the functions of life, and it is a major staple food all over the world.

But even so, the consumer's supply with eggs is far from being fully secured everywhere. Therefore this supply with wholesome eggs in sufficient quantities at affordable prices ranks as one of the top priorities with many authorities.

The basis for the production of full-value fresh eggs must be seen in production systems which guarantee that all the technical, climatic, production environment and feed-specific requirements are met.

In the floor regimes customary in previous egg production the maximum stocking density achievable was approximately five hens per square metre. Today's systems offer the producers to keep as many as 15 hens per square metre.

Moreover, the poultry management systems of the past did not meet hygienic and economic requirements. Feed consumption was extremely high and the average performance level of approx. 130 eggs per hen and year was only half the result that modern intensive egg farms routinely achieve.

The table egg production project described on the following pages, is designed for an annual output of 7,500,000 eggs.

Description

For the efficient production of table eggs, there are several factors of major importance apart from the obvious questions which layer strain is to be housed: the right combination of feed and lighting; the creation of optimum environmental conditions inside the layer house; cage size and stocking density. Of equally decisive importance are veterinary servicing as well as good caretaking and poultry husbandry exercised by the personnel.

Because birds' requirements of the above requirements vary from the day of hatch to the end of the production period the systems available for the cage regime are designed to incorporate these varying requirements.

House temperature, lighting intensity and duration and feed-ration composition are the foremost factors which must be adapted to the age of the birds and their respective phase of production.

Since chicks' requirements are quite different from those of mature hens, they are housed in specifically equipped rearing or growing cages where they remain until about 20 weeks of age. This is when maturity sets in and the birds begin to lay.

With the onset of egg production, the pullets are moved to the layer farm where laying cages specifically geared to egg production requirements are installed.

Prior to the arrival of a new batch of pullets, the layer house first undergoes complete disinfection and is conditioned to the right temperature and bird environment. Feed bins or silos are loaded with specific feed.

A variable lighting and feeding programme lets the birds eat feed four or five times a day.

Manure is dropped on a coated manure belt where it is dried under the influence of preheated fresh air.

The slight incline of the cage bottoms allows for a smooth rolldown of the eggs onto the collection belt. An egg cross collection belt transports them once every day to a separate egg collection and processing room located in the cool house.

Once every week the predried manure is automatically removed from the cage batteries and conveyed to an outside location for interim storage. Here, the manure is allowed to dry out completely to dry matter ratings of 90% and it can then be sold, bagged or in bulk, as the market requires, or it may be used as a farm-produced fertilizer in the farm's own operations. In any case what results is a completely odourless substance which offers ample chance of marketing a profitable byproduct.

Under normal conditions, a rate of lay of 244 eggs per hen and year can be expected on the average.

At the end of the first laying period criteria of egg production economy must dictate whether the birds are force-moulted and brought into a second period of lay or whether they are sold as spent hens, making room for a completely new batch of replacement pullets.

Example of the Plant

Required Machinery and Equipment

Item	*Description*	*Pieces*
1.	Pullet growing cages set, day-to-lay type, complete with feeding, watering and disinfection equipment	1
2.	Set Laying cages for mature birds, complete with feeding and drinking water supply system	1
3.	Manure drying system	1
4.	Manure conveying system	1
5.	Egg collection system	1
6.	Egg grading and packing equipment	1
7.	Feed storage silo	1
8.	Feed conveyor from bins to cages	1
9.	Ventilation system	1
10.	Air cooling equipment	1
11.	Artificial heating for growing day-old chickens	1
	FOB-price for machinery and equipment approx.	US$ 400,000.00

Required Manpower

Farm manager	1
Secretary	1
Foreman	1
Farmworkers	3
Helpers	2
	8

Required Area

Production area	1,800 sq.m
Facilities	200 sq.m
Feed storage silos capacity	24 t
Outside manure storage	1,000 sq.m

Required Power and Utilities

1.	Electrical power AC 380 V, 50 c/s, 3-phases	200 kW
2.	Fuel oil	
3.	Water	0,25 l/bird/day
4.	Fresh air	10 cu.m./bird/hour
5.	Disinfectants	50 l/laying period
6.	Drugs, pharmaceuticals vaccines for New-Castle, Marek's Disease, other endemic diseases	

Required Raw Materials

1. Chick starter & pullet growing rations
2. Layer feed
3. Poultry stock
4. Drinking water

This information has been prepared by UNIDO as a result of the financial contribution to UNIDO from the Government of the Federal Republic of Germany and the close co-operation extended to UNIDO by the relevant industries in the Federal Republic of Germany.
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