

# Construction of one thousand (1000) Capacity of Poultry House

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## ABSTRACT

Poultry housing is the important factor of Poultry farming and how to build Poultry pen is the common question for the producers. Basically the Poultry house is the main factor of keeping your birds healthy, fast growing and producing the maximum. The land was extremely cleared and the debris was packed with the use of Cutlass and rake. Immediately after the clearing of the grasses the setting and the marking out of the building was carried out to ease the process of construction. The foundation was dug to a depth of 0.45m and the width 0.45m to support the load of super structure above it. The site was measured to the length and the width of 21.75m by 9.2m which have the capacity of housing 1000 birds. The office measured to the length and width 2m by 7.7m and the toilet measured to the length and the width of 2m by 1.5m, the brooder and the store was measured to the length and the width of 2.55m by 6.25m, the store was measured to the length and width of 2.55m by 2.92m in order to ease the operation in the Poultry house

**Keywords :** Poultry, House, Land, Equipments

## I. INTRODUCTION

According to agriculture diary, poultry refers to a wide range of birds of various species and it applies to them generally alive or dressed that is killed and prepared for sales (Martin, 2015). It involves chickens, turkeys, ducks, geese, guinea fowl, pigeons, peacock, peafowl, ostriches, quails and even other game birds (Anthony, 2011). Most of them may be classified based on the basis of utility, economic value or purpose and this may include meat type, Egg type, dual purpose, game etc. Changing food habits, globalization, industrialization,

rising income and urbanization have created a favorable atmosphere for development of poultry sector (Benso, 2010). Poultry is one of the fastest growing segments of livestock/agriculture sector and contributes a major share in terms of protein supplementation from eggs and meat (James, 2008). Development of Poultry Industry in India has made huge step during the last three decades evolving from backyard farming to a full-fledged commercial enterprise as a result of research and development initiated by the Government and subsequently taken up by the organized private sector (Tlormark, 2013).

Hybrid layers of today lay on an average of 310-320 eggs per year compared to 240-250 eggs 30 years back. Similarly, present day broilers attain 1.8 to 2.0 kg mean bodyweight with a FCR of 1.6 to 1.8 in only 38 days (about 6 weeks). For every success of poultry business, adequate knowledge on various aspects of poultry production is very much needed and one can get sufficient professional and technical information from this course, Status and perspective of Indian Poultry Industry (Williams, 2012).

Poultry production is an important part of sustainability agriculture, protecting the environment while addressing the consumer concerns. Poultry house should be weather-proof to provide protection from the element ( cold, rain, wind and hot sun) and provide warmth, especially during brooding (Dornard, 2008). Housing should be also provide ventilation, as well as protection from predators. Many innovative housing design are in alternative poultry production, including fixed houses with permanent foundation, mobile houses and simple shelters (Smithford, 2020).

Poultry housing is the important factor of Poultry farming and how to build Poultry pen is the common question for the producers. Basically the Poultry house is the main factor of keeping your birds healthy, fast growing and producing the maximum. Before making Poultry house one have to keep in mind about some factor; house will be well ventilated, free from predators or enemies, sufficient healthy facilities (Bernard, 2022).

Before making houses for Poultry birds, keep in mind that every chicken needs 40 to 50 square centimeters place. Suppose you have decided to make a Poultry house for 1000 chicken then the area of Poultry house would be between 40000 to 50000 centimeters (Torlek, 2022).

Some important/essential information about chicken housing are described below for making suitable and proper Poultry pen;

- i. Poultry house must have to be well maintained.
- ii. Ensure sufficient entrance of sunlight and fresh air inside the house

iii. It would be better if the house become suitable to north to south faced.

iv. The distance to one another about 40 feet (Zolly, 2015).

To construct a complete Poultry pen you must have to complete the following to build a standard Poultry pen; Selection of location, optimal area condition, house orientation, size length, width, foundation, floors, door, side walls and roof.

The inter- platform distance is 6-7 feet depending upon the types of the cages used. The total height of the house is 20 to 25 feet and the width is 30 to 35 feet. This type of house/pen provides sufficient ventilation in tropical countries. Good foundation is essential to prevent seepage of water into the Poultry house shed. The foundation of the house should be of concrete with 1 to 1.5 feet below surface and 1.5 above the ground level (Gordon, 2022).

One philosophy, known as "fresh air school" is the chicken are mostly hardy but can be brought low by confinement, poor air quality and darkness, hence the need for a highly ventilated condition like the outdoors, even in winter (prince, 2008).

However, others who keep chicken believe that they are prone to illness in outdoor weather. This has led to tep housing designs for chicken: fresh air houses with wide opening and nothing more than wire mesh between chicken and the weather ( even in northern winter), or close houses with doors, window and hatches which can shut off most ventilation (Gordetal, 2004).

#### Important of Poultry House

Poultry housing design plays a vital role in the determination of the internal climatic conditions of the house for optimum health, growth and productive performance of the birds (Vinalo, 2013). The open poultry house system has been adjudged a good method of housing in the tropical countries because of the simplicity of its construction, ease of heat management and minimal management cost, the

controlled housing system is the most common in the temperate regions of the world (Zindem, 2012).

The importance of the type of poultry housing system employed for chicken production cannot be over emphasized. It protects the birds from the harsh environmental climatic conditions, which may have adverse effect on the chickens' performance and productivity. In a poultry house, the overall heat generated is the sum of heat generated by the birds, the surrounding environment and biodegradation of fecal material. Thus, the type of housing system to be used is a major determinant factor in the type of management to be adopted in the poultry farm (lentco, 2010).

#### Constraints of Poultry House in Nigeria

The major constraints of household Poultry; is the high incidence of Newcastle disease, poor productivity and inappropriate of housing. Production sufficient can be affected long before the temperature reaches is level at which survival become a concern. Heat stress begin when the ambient temperature rise above 80°f, in combination with humidity play an important role in the design of building and poultry house. They also affect the chicken's general performances during hot season which causes substantial drawback in supply. This is mainly due to the unfavourable circumstances with broiler in housing system which causes poor growth, where commercial Poultry products are not attainable, village folw or constitutes an important component of the agricultural and household economy in the developing world. It's contribution includes direct food production as well as employment and income generation for small farmers (Gueye, 2016).

#### Feature of Poultry House

Construct poultry houses under tropical environmental conditions for business, the fulfilment of the following factor;

#### Foundation of the House

A solid foundation is necessary to support the building. Digging should be done to a depth of between 0.5 to 0.7m or more depending on the nature of the soil. After digging, a layer of concrete should be poured into a

depth of about 10cm; this will form the basement upon which the blocks will be laid. To minimize the effect of termites, an anti-termite chemical (solarium) can be poured on top of this basement. Before building up the rest of the foundation. provision should be made for the erection of pillars at intervals along the length of the building. These pillars will support the roof in an open-sided poultry house (Pollardo, 2003).

## II. MATERIALS AND METHOD

### Materials

The following are the materials used in the construction of Poultry house

- i. Fine aggregate
- ii. Coarse aggregate (gravel)
- iii. Block
- iv. Cement ( Dangote Portland cement)

### Equipment Used

The equipment used for construction of Poultry house includes;

- i. Rake was used to gather the debris
- ii. Cutlass was used to cut off the grasses
- iii. Shovel was used to packed the grasses and used to mix concrete and mortars
- iv. Hoe was used for clearing and weeding of grasses
- v. Measuring tape was used to get the accurate measurements of the ground
- vi. Peg was used to demacate the placed measured
- vii. Trowel was used to smoothing and moving small amounts of viscous or particulate material

## METHOD

### Site Location

During the construction of the Poultry house the site allocated for the construction was properly investigated to check the location, accessibility, availability of space, services and the ground composition, by changing of the subsoil strength of the particular space allocated for the section.

### Site Clearing Operation

Site clearance for foundation construction requires excavation and setting out. As well as health and safety measures to ensure that the site is ready for

construction and no one is injured. To construct an excellent project, the site needs to be prepared for construction. Hence, the condition of the project site, including its surface and subsurface condition were properly taken care.

The site clearing was done manually to obtain a good leveled and -free surface. Various kinds of tools were used in the clearing of the site to achieve the maximum objective of the project, these tools includes, Cutlass, hoe, digger, shovel. The Cutlass was used for clearing the site and cutting down the shrubs at the grounds, hoe was used to remove the shrubs and trees Cutlass could not remove. The digger was used for losing and breaking the top soil, the shovel was used to pack the grasses and shrubs into the wheel barrow while the wheel barrow was used to transpotthe grasses and shrubs to a waste land or refuse dump.

#### Setting and Marking out

Marking out or layout means the process of transferring a design or pattern to a workpiece, as the first step in the construction process. The marked out dimension given for the project was 21.75m by 9.2 m. The position of the line was clearly marked on set to be re-established later or anytime. After the bass line was set out, the main line of the building was marked and checked. The building was set out, each of the corners were marked with stout peg, and a temporal bench marked was placed and a twine was used to a line part of the bench to be excavated. Any error made when setting out a building will make a permanent distortion on the building. The method used in setting out the foundation was a center line method.

I. The center line of the longest outer wall was marked by string between two wooden spegs driven at the end, 21.75m

II. The outer center lines of the remaining wall was fixed with reference between the first center line by setting out the perpendicular with the help of an optical square or large wooden square

III. The corners of the reference peg were driven sufficiently outside the limit of excavation (minimum of 1m from the outer edges of the foundation trenches)

IV. The reference platform was established by excavating the soil in line with the reference lines.

Construction of foundation and the layout of the concrete measurements

Strip foundation at most constructed or used in an area with strong soil strip foundation was chosen or used because it does not require heavy load, since the project carried out was Poultry house constructio. The foundation trench was dug using digger and shovel to excavate the soil of 9 inches depth with a width of 0.45 m and the thickness of the concrete bed i.e (blinding was 0.05m). The excavation soil was removed using shovel, the bench at the ground level was also leveled to maintain the thickness of the concrete throughout the foundation concretin; the small peg i.e (0.5m) were given.The blocks are laid round the trench, the foundation is followed along the center line of the block. The dump proof concrete was laid along the German floor.

Tools such as hoe digger were used during the digging of the foundation.

The steps involved in concreting practices operation done

#### Congregating or Batching

The process of measuring ingredients or materials to prepare concrete mix, this is done by force using wheel barrow. A mix ratio of 1:4:5 was used in every one bag of cement 4 wheel of barrow sand and 5 wheel barrow of gravel was measured

#### Mixing

The mixing was done manually using shovel. The materials were batched and the cement was poured on it, the material was turn side to side untill the materials was mixed thoroughly, and water then was added to a mixture and was turned thoroughly.

#### Transport of the mixed concrete

Transportation is the process of moving the mixed concrete from the point of the mixing to the construction point. The concrete mixed was transported using head pan and wheel barrow.

#### Placing of the concrete

The concrete was deposited on a cleaned surface which was well watered. It was placed vertically down the and was distributed uniformly as it was placed.

**Laying of blocks**

The block were laid from the ground level using stretcher course. Stretcher course involve laying of Block on their stretcher only. The block were spaced and mortars was used to bind them together by the use of hand trowel and showing board.

**III. RESULT AND DISCUSSION**

The site selected for the construction of Poultry house was high for proper drainage of water, it was built inside school and far away from residential houses and Industrial not to create a pollution, emission gases, unsanitary environment, noise from the machinery and it was located east-west against the direction of wind to prevent it from wind disturbance.

The land was extremely cleared and the debris was packed with the use of Cutlass and rake. Immediately after the clearing of the grasses the setting and the marking out of the building was carried out to ease the process of construction. The foundation was dug to a depth of 0.45m and the width 0.45m to support the load of super structure above it. The site was measured to the length and the width of 21.75m by 9.2m which have the capacity of housing 1000 birds. The office measured to the length and width 2m by 7.7m and the toilet measured to the length and the width of 2m by 1.5m, the brooder and the store was measured to the length and the width of 2.55m by 6.25m, the store was measured to the length and width of 2.55m by 2.92m in order to ease the operation in the Poultry house.

The foundation trenches was dug the concrete was mixed with ratio of 1:4:5 and poured into the foundation trench to form a rock-line structure for the firm construction of the building.

The bricks 9 (inches) were used for the Poultry construction because it prevent more heat from the environment into the building. The 9 inches blocks were raised to the window level and the two open side

from the foundation level of about 5 blocks inches from damp roof concrete level.

**Cost of the construction work**

**Area of the trench (Foundation)**

Length and width, i.e the length 21,750mm(21.75m) width is 9,200mm(9.2)

Total area  $21750 \times 9200 = 200,100,000\text{mm}(30.95)$

Area of the office length and width 2m by 7.7m and toilet 2.55m by 6.55m, store length and width 2.55m by 2.92m, brooder length and width 2m by 1.5m.

FIG. 1 Setting of the concrete Poultry house

Specific block= Number of the blocks per meter of a course

Block length + bond thickness

$$=1000. =1000. 1.9952 \text{ 2block/m}$$

$$450+51.2 \text{ 501.2}$$

$$\text{Total length of all the wall} = (21,750 \times 2) + (9200 \times 2) + 1500 + 2920 = 43,500 + 18,400 + 1500 + 2920 = 66,320$$

$$66,320\text{mm convert to meter } 66,320/1000=66.32\text{m}$$

The number of block use in each course = Total length of wall  $\times$  specific number of the blocks

Per meter.

$$66.32 \times 2 = 132.64 \text{ blocks}$$

Total blocks = Number of blocks In each courses  $\times$  total number of courses

Where the total number of courses is = 9 courses

$$132.64 \times 9 = 1,193.76 \sim 1,194 \text{ blocks}$$

$$\text{Blocks in the window opening ( front)} 1.216 \times 2 \times 4 = 6.432 \text{ blocks}$$

$$\text{Blocks in the window opening (Back)} 1.216 \times 2 \times 4 = 6.432 \text{ blocks}$$

The total used for the construction= 1,194 blocks

TABLE 1 Cost of the materials used in the construction of Poultry house S/NO Description of the materials Quantity Cost unit Amount (₦)

1. Sand (Fine aggregate).	3 trip	₦18,000	₦54,000
2. Gravel (fund aggregate).	1 trip	₦36,000	₦36,000
3. Cement (Dangote Portland cement)	30bags.	₦4200	₦126,000
4. Block 9inches.	2000	₦250	₦500,00
5. Block 6 inches.	500	₦150	₦75,000
6. Labour cost	4days	₦6,000	₦ 24,000
7. Miscellaneous expenses	-	₦3,500	₦17,500
<b>Total.</b>			<b>₦832,500</b>

#### IV. CONCLUSION

From the design and construction of the poultry house for birds, a practical knowledge and experience had been acquired on how Poultry house can be built, thus when constructing a Poultry house the selection of location and the type of the material to be used when constructing the Poultry house are very essential. This project helps to be identify the types of Poultry housing in existence, the knowledge about batching, mixing ratio, how to measure accurately, the placing of concrete in construction site has been gained. This knowledge acquired can be apply in any Poultry house construction, thence making the student to be enlightened with the construction processes.

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