

Agricultural Science

Year 1

SECTION

6

PROCESSES OF POULTRY PRODUCTION AND SALE



Farming for Jobs and Income

Economic Production of Animals

Introduction

Hello learner! Welcome to section 6. In this section, you are going to be introduced to the processes involved in poultry production and sales of their products. This section will help you to appreciate the resources that are needed to undertake poultry production and the processes of gathering these resources. You would also understand the market needs of consumers to produce these poultry products to meet their needs. Many Ghanaians depend on eggs and chicken as a means of providing protein for their families since they are comparatively cheaper than other sources of meat.

Again, this section aims to help you acquire the prerequisite knowledge and skills needed to plan, organise, produce and market poultry and poultry products successfully to make you self-employed if you decide to engage in it. It will also help you to identify resources required for the production of poultry, including the choice of poultry to produce, housing and feeding, control and management of poultry pests and diseases, types of market outlets, the need for quality products, market chains, packaging and pricing to meet consumer demands and budgets.

At the end of this section, you will be able to:

- Identify resources and market needs for poultry production.
- Organise and produce a poultry type that is common in the locality for eggs and meat.
- Outline various distribution outlets and ways of marketing poultry produce and products.

Key Ideas

- **Resources:** This covers all the required materials including capital, land, tools, equipment and infrastructure.
- **Key processes involved in poultry production:**
 - Pre-production stage: This involves the preparation that needs to be done and resources that need to be mobilised before production can begin.
 - Production stage: This involves all the activities that need to be carried out in the course of the production processes till the produce/ products are ready to be sold out or marketed.
 - Post-production: This involves marketing the poultry products and all other activities that are carried out after production and before another production cycle begins.

RESOURCES AND MARKET NEEDS FOR POULTRY PRODUCTION

The term resources cover all the required materials including capital, land, tools, equipment and infrastructure. Marketing involves buying and selling in a market where consumers get their essential needs. Market needs are things that satisfy the basic requirements of consumers. All the necessary processes of handling poultry and poultry products such as dressing, washing, cleaning, sorting, grading, packaging and ways of marketing poultry and poultry products are done to satisfy these needs. A plan of activities is needed for target groups and how to conveniently provide the goods and services to the consumers and customers of the poultry and poultry products. This includes the identification of the various components and outlets for marketing poultry products. The knowledge and skills of caring for and management of poultry and poultry products are equally relevant since poultry must be raised to maturity before their products such as eggs and meat are obtained.

Resources Required for Poultry Enterprise Establishment

1. Capital to finance the project.
2. Land to establish the poultry house.
3. Poultry house/structures.
4. Breeding stock (starter breeds)
5. Feed.
6. Vaccines and medications to control pests.
7. Feeding and water troughs
8. Permanent source of litter
9. Permanent source of water

Elaborations on some of the resources

Capital to finance the project: Poultry production requires some financial resources to acquire the land, housing units, tools and equipment in order to start and be successful.

Land: Poultry production requires a large area for housing, feed storage and waste management.

Poultry houses/structures: Apart from keeping birds by using the extensive method or free range method, the use of intensive and semi-intensive methods all require well-built poultry houses and structures to keep the birds safe. Even with the extensive or free-range system some form of poultry houses or structures are needed to keep the birds safe at night.

Breeding stock (starter breeds): A carefully selected breeding stock or starter breeds are also required to start a successful poultry enterprise.

Feed: Poultry requires a balanced diet consisting of protein, carbohydrates, vitamins and minerals for optimal growth and good health of the birds.

Vaccines and medications to control disease and pests: Poultry requires regular medication and vaccination to prevent and control pests and diseases.

A permanent source of adequate litter: The litter needed for a semi-intensive and intensive system of poultry production requires that they be changed at the end of one or two production cycles. This means that there must be a permanent source of litter to facilitate the change of the litter when the time is due.

Permanent source of water: Poultry requires a clean, adequate, and reliable source of water for drinking and sanitation management. A successful poultry enterprise needs a permanent source of water for use by the birds and for processing of their products. Poultry enterprises cannot be established in areas where there is no permanent source of water.

Equipment: Poultry production requires various types of equipment such as feeding and water troughs, heating, lighting and ventilation systems, incubators, hatcheries, and stores.



Fig 6.1: A water trough



Fig 6.2: A feeding trough

Market Requirements for Poultry Production

The producer must be conscious of the quality of his/her poultry product, affordable prices and consumer preference and be able to produce and supply regularly.

Factors to consider in marketing poultry and poultry products

Goal/purpose of production:

- a. Which system of production to adopt?
 - i. Extensive system/free-range system (ii) Intensive system e.g. battery cage system or Deep litter system.

- ii. Semi-intensive e.g. movable fold system.
- b. What to produce - For example, eggs or meat. That would inform you of whether to raise layers, cockerels or broilers.
- c. What breed to produce - Is it local or exotic breeds?
- d. Target market to focus on - Is it local or foreign markets?

Market outlets for poultry and poultry products

- a. Wholesale marketing
- b. Roadside marketing
- c. Farm gate marketing

Market (Consumer) Needs for Poultry Produce and Product Marketing

1. **Quality product:** The market (consumer) demands high-quality poultry products that are free from contaminants, antibiotic residues, pests and disease pathogens.
2. **Affordable pricing:** Consumers look for affordable prices for poultry products that meet their budget.
3. **Convenience:** Consumers want readily available poultry products with easy access to retail stores and markets.
4. **Halal and Kosher Certification:** Some customers prefer halal and kosher-certified poultry products for religious reasons.
5. **Environmental impact:** The market requires that poultry production practices are sustainable, environmentally friendly, minimise pollution and consider the welfare of animals.

Now that you have successfully studied the content, do the following activities.

Activity 6.1

Search online for the factors that drive consumer preferences and trends in the poultry industry write a report on it and discuss it with a friend or friends.

Follow the steps below to achieve activity 6.1.

Steps:

- a. Search online using any preferred search engine. Make sure that your data is on.
- b. Type “factors that drive consumer preferences for poultry products in our community.”
- c. Read carefully about what you find and jot down important points.

- d. Again, type “trends in the poultry industry”
- e. Wait for it to open, read and write down the key points.
- f. Discuss your findings with your friend or friends.

Activity 6.2

Browse the Internet for information about the resources required to set up poultry ventures.

Follow the steps below to achieve activity 6.2

Steps:

- a. Search online. Make sure your data is on.
- b. Type “the resources required to set up successful poultry ventures”
- c. Wait for it to open.
- d. Read the information carefully and jot down relevant notes.
- e. Discuss your findings with your friend or friends.

ORGANISING AND PRODUCING POULTRY TYPES COMMON IN THE LOCALITY FOR EGGS AND MEAT

The farmer could be producing either eggs or meat or day-old chicks. Whichever he/she decides will determine the type of resources to put together towards the production. In this lesson, concentration will be on egg and meat production.

Resources Required to Start Poultry Production

The resources that are required for a farmer to produce either eggs or meat include;

1. Income/capital
2. Land and structure preparation
3. Feed/rations
4. Vaccines
5. Water and feeding troughs
6. A permanent source of **litter**

Proper hygiene and effective management practices including vaccinations should be taken into account.

Organising to Produce Poultry for Eggs and Meat

1. **Choose poultry type:** Decide on the type of poultry to raise. For egg production, chickens like White Leghorn, Brown Leghorn, Goldline chicken, Rhode Island Red, Light Sussex and Plymouth Rock are popular choices. For meat production, broiler chickens such as Dark Cornish and Marshall Broiler or guinea fowl, turkeys, quails, ducks and ostriches are common options.
2. **Housing and infrastructure:** Construct appropriate housing and infrastructure for the poultry. Ensure it provides adequate space, ventilation, lighting and protection from predators and harsh weather conditions.
3. **Feeding and nutrition:** Develop a good feeding schedule for the poultry, using high-quality feed with essential nutrients, for healthy growth and optimum egg production.
4. **Health care and biosecurity:** Implement a regular health care programme including a vaccination schedule for the well-being of poultry.

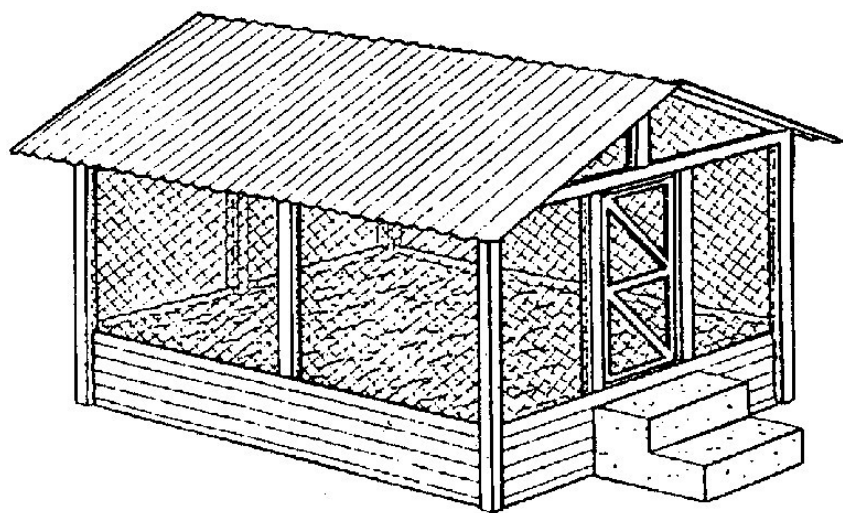


Fig 6.3: An illustration of a deep litter house. (Copyright: [Nick van Ekeren](#))



Fig 6.4: Poultry in a deep litter house

5. **Egg production management:** Provide nesting boxes and suitable conditions to encourage egg-laying. Collect eggs regularly to maintain cleanliness and prevent damage.
6. **Meat production management:** For meat production, monitor the growth of the birds and ensure they have access to a balanced diet to reach the desired weight by 8 weeks for broilers and six months for cockerels to maximise profit.
7. **Marketing and distribution:** Develop a marketing plan to sell eggs and meat products. This can involve local markets, grocery stores, restaurants or direct-to-consumer sales.
8. **Record keeping:** Keep detailed records of production data, including egg or meat yield, expenses and health-related information. This information helps in making informed decisions and identifying areas for improvement. These records can be kept in portfolios or field notebooks.
9. **Compliance and regulations:** Ensure that all local regulations and standards related to poultry farming, including animal welfare and food safety guidelines are met.
10. **Continuous improvement:** Regularly assess and improve your poultry management practices to optimise productivity, quality and efficiency.
11. **Peer consultation:** Consult with experienced poultry farmers or agricultural experts since they can provide valuable insights to help with the success of the venture.
12. **Egg laying and incubation for day-old chick production:** In case you plan to breed poultry, select a healthy breeding stock with desirable traits for egg-laying or meat production. Proper breeding management will ensure a productive and robust flock. It is necessary to place cockerels with the layers/hens in the pens with 1 cockerel to 15 hens. This will ensure the production of fertile eggs for incubation either by natural or artificial means. The period taken for the egg to hatch is referred to as the incubation period. Natural means broody hens sit on their eggs to hatch them. For artificial means, eggs are placed in an incubator, where they hatch after 20 - 21 days for chicken, 28 days for duck, guinea fowl and turkey, and 42 days for ostrich.

Now perform the activities below.

Activity 6.3

1. Visit a nearby poultry farm with friends to observe the various stages and challenges involved in poultry production. Prepare a questionnaire to obtain information on the criteria used to identify potential suppliers and partners for poultry production. The questionnaire should include: Who are your suppliers? Who are your partners?

Hint:

- a. Visit the poultry farm bringing with you any necessary materials, including your questionnaire.
- b. As you are observing, ask questions to know about the stages and the challenges of poultry production.
- c. Write down notes on the stages of production as well as the challenges the farmer faces in his/her production processes.
- d. Use your questionnaire to obtain information from the farmer on the criteria used to identify potential suppliers and partners for poultry production.
- e. Discuss your findings with your group.

OR

Where poultry farms are not within easy reach, click on this link: [Growing from 200 Chickens to 3500 birds producing 530 egg trays a week | Msingi Poultry Farm \(youtube.com\)](https://www.youtube.com/watch?v=...) and watch short videos on poultry production.

2. Discuss the stages involved and the challenges in poultry production with your friends.

Activity 6.4

After having all the necessary resource materials (hen coop, feeding and watering troughs, suitable feed etc), obtain day-old broilers or layer chicks with the breed of your choice and rear them for up to at least 8 and 16 weeks respectively.

Hint:

- a. Use locally available materials to make a simple hen house or coop.
- b. Get suitable water and feeding troughs from your locality, for feeding and watering your birds.
- c. Take proper care of the health of your birds by ensuring proper feeding, good sanitation, medication and hygiene.
- d. Take records of all the activities that you carry out while rearing your birds.
- e. Discuss with friends what you intend to do with your birds at the end of the exercise. Are you rearing the birds for eggs or meat?

DISTRIBUTION OUTLETS AND WAYS OF MARKETING POULTRY PRODUCE AND PRODUCTS

The knowledge of market or consumer demands, target populations, packaging and means of delivering goods and services is of great importance for the successful marketing of one's products.

The types of marketing outlets must be analysed before the start of production.

Types of Marketing Outlets

1. **Local farmer markets:** These are stalls set up at farms, also called farm gate markets, to directly sell to consumers looking for fresh eggs and meat products.
2. **Grocery stores and supermarkets:** Local grocery stores and supermarkets that distribute poultry products to a wider customer base.
3. **Restaurants, eateries and hotels:** These take up poultry products regularly to support their menu.
4. **Online sales platforms:** These are e-commerce platforms for selling poultry products and offer doorstep deliveries.
5. **Community Supported Agriculture (CSA):** This is a community programme that brings farmers together to supply their produce to meet expected volumes required by the community, but also supplies to consumers located outside the community. However, consumers must subscribe to receive regular supplies.
6. **Foodservice distributors:** Foodservice distributors link producers to institutions such as schools, hospitals, and catering businesses.
7. **Local butcher shops:** These shops specialise in selling meat products.
8. **Specialty stores:** These are distribution outlets that focus on organic products and may be interested in keeping poultry products hygienically produced.
9. **Wholesales:** Wholesale distributors purchase poultry products directly from poultry farmers and sell them to supermarkets retailers and restaurants.
10. **International markets:** Poultry products are exported to foreign countries where demands for such products are high.

Ways of Reaching Outlets Marketing Poultry Produce and Products

Marketing is an ongoing process, and it is essential to adopt strategies based on customer feedback, market trends and changing consumer preferences. It is important to be consistent in providing high-quality products and excellent customer service to build a loyal customer base.

Ways of doing this include:

1. **Online presence:** Create a website or social media profile to showcase your poultry products, share your farming practices and engage with potential customers.
2. **Social media marketing:** Use social media platforms to reach a wider audience and share interesting content such as recipes, cooking tips and behind-the-scenes glimpses of your farm.
3. **Email marketing:** Build an email list and send out regular newsletters with updates, promotions, and exclusive offers.
4. **Farm events and workshops:** Host farm events, workshops or open houses to educate the community about your poultry farming practices and build brand awareness.
5. **Collaborations and partnerships:** Partner with local chefs, nutritionists or influencers who can promote the products and provide recipe ideas.
6. **Sampling and tastings:** Offer samples of your poultry products at farmers' markets or food festivals to attract potential customers.
7. **Testimonials and reviews:** Encourage satisfied customers to leave reviews and testimonials that can build trust and credibility for your products.
8. **Community engagement:** Get involved in community events and initiatives to connect with local consumers and showcase your commitment to sustainable and ethical farming.

To remain competitive, product labelling and packaging should be of good quality. The design should be attractive and informative, highlighting the quality, source and any certifications (eg organic, free-range) to appeal to consumers.

Activity 6.5

Browse the Internet and learn about the distribution outlets for poultry products. Discuss how these distribution outlets are important for poultry production with a friend or friends.

Activity 6.6

Discuss the needs and demand for poultry meat, eggs and other related products.

Hint:

- a. *Work with a group of three or five friends. Where appropriate work in mixed gender groups.*
- b. *Select a leader.*

- c. *Assign roles or tasks to group members.*
- d. *Read extensively to know the needs and demand for poultry meat, eggs and other products.*
- e. *Share your findings with one another.*

Project Work

Download and study the Market Analysis and Forecasting App from the Internet. Seek help from your teacher or an expert on how this App can be used.

Steps:

- a. Search online. Make sure that your data is on.
- b. Type “Market Analysis and Forecasting App” in the browser and hit on the enter key. Wait for it to open and read carefully about the uses of the App. Take down relevant notes.
- c. Discuss your findings with your friends or friends.

REVIEW QUESTIONS

1. You have discussed with your parents about your intention to start poultry production on a relatively small scale. They have asked you to give them an idea of the resources that would be required to build a strong brand and reputation in the market. Identify all the key resources that you would need to help you start your business.
2.
 - a. What are the consumer or marketing needs for poultry that can enhance its marketing?
 - b. Discuss how meeting the market needs for poultry meat and egg production can help make the poultry business a success.
3. Discuss the challenges and solutions in poultry production.
4. Describe the stages involved in poultry production.
5. Explain the processes used to process poultry for the market and describe how this will improve the shelf-life of the product.

ANSWERS TO THE REVIEW QUESTIONS

1. Refer to content on resources required for poultry enterprise establishment
2.
 - a. Refer to content on market (consumer) needs for poultry produce and product marketing.
 - b. Meeting the market needs for poultry meat and egg production can help make the poultry business successful in the following ways:
 - It would bring about a high level of patronage from the consumers.
 - Consumers can be assured of high levels of hygiene and safety of the produce/products.
 - The producer will obtain more income that can be ploughed back into the business to allow it to expand.

3. Challenges of poultry production

- High cost of feed
- Inadequate knowledge and skills in poultry production
- Pest and disease outbreak
- Lack of good financing
- Inadequate market for poultry and poultry products
- Difficulty in power supply
- Competition from imported birds
- Inadequate veterinary officers
- High cost of poultry vaccines

Solutions to challenges of poultry production

- Provision of subsidies for poultry feeds
- Inservice training for poultry farmers
- Proper and strict vaccination of birds against pests and diseases
- Provision of loans to poultry farmers
- Guaranteed prices for poultry and poultry products
- Good power /electricity supply
- Training and posting of veterinary officers in the country

4. Stages involved in poultry production:

- Pre-production stage: This involves the preparation that needs to be done and resources that need to be mobilized before production can begin.

- Production stage: This involves all the activities that need to be carried out in the course of the production processes until the produce/ products are ready to be sold or marketed.
 - Post-production: This involves the marketing of poultry produce and products and all other activities that are carried out after production and before another production cycle begins.
- 5.** Explanation of the processes used to process poultry and poultry products for the market
- Killing is carried out with simple tools or machines.
 - After birds are killed, they are scalded in hot water and then their feathers (defeathering) and internal organs are removed.
 - The carcass is then washed and packaged.
 - The meat may then be sold dressed, or cooked and sold in parts.
 - Eggs may be sold as table eggs or processed into egg products that go into a wide range of food products. Making egg products involves breaking the shells, filtering, mixing, stabilizing, blending, pasteurising, cooling, freezing or drying and finally packaging.

All these processes are done to make the poultry products last longer, hence improving their shelf-life.

EXTENDED READING

- Amoah E. (2019): General Agriculture for Senior High Schools “Exotic series.
- Resources needed for poultry production ([Equipment Needed for Poultry Farming: Tools, and PDF \(agrifarming.in\)](#))
- [Market Distribution of Poultry Products – Science Direct](#)

REFERENCES

1. STEM Agricultural Science Curriculum.
2. Teachers’ Manual on the new Standard-based Curriculum.

GLOSSARY

- **Market needs:** These are things that satisfy the basic requirements of the consumers.
- **Peer consultation:** Consulting with experienced poultry farmers or agricultural experts.
- **Distribution or market outlets:** These are the various channels through which the products produced can be sold.

Acknowledgements



Ghana Education
Service (GES)



List of Contributors

Name	Institution
Rev. Emmanuel Asare	O'Reilly SHS, Accra
Eric Amoah	Achiase SHS
Stephen Gyempeh	Islamic SHS, Kumasi
Abdulai S. Gong	St. Vincent College of Education, Yendi