SUBJECT: AGRICULTURAL SCIENCE

TOPIC: FISH FARMING

CLASS: SS3

WEEK: 9

Fish farming involves raising selected fish species commercially under scientifically controlled condition in enclosed water bodies such as ponds, lakes etc. where they live ,feed, breed and are harvested for man's use .common fish species reared commercially includes salmon, tilapia, catfish, crab etc.

IMPORTANCE OF FISH FARMING

1. FOOD: Fish and other aquatic organisms are used mainly as human food. Fish flesh is regarded highly for containing first class animal's proteins, vitamins and many mineral salts and other chemicals substances that are needed to keep the human body healthy and strong. The flesh of fish, crab, prawns and squid is very soft and good to eat. Fish and turtle eggs are also commonly eaten .fish eggs which salted and prepared for eating are called caviar.
2. LAETHER: The skin of cartilaginous fish such as sharks is tough and covered with small, sharp spines.it is sometimes dried and specially treated to produce very special leather called shagreen. Crocodile and turtle skins also make very good leather for handbags, wallets, belts, and shoes.
3. `POLISHING MATERIALS: dried fish skin or shagreen is sometime used like glass paper for polishing surfaces.
4. ORNAMENT: The scales of fish are sometimes to make artificial pearls which can be worn as beads. Oysters contain pearls which are polished and worn as jewelry.
5. SOAP AND MEDICINE: The oils obtained from fish, whales and turtles are used as food and also for the manufacture of medicines and soap. Cod liver oil is a very popular item consumed by many people as a food supplement.
6. ANIMALS FEED: Many fish and parts of fish which are not eaten by humans are processed into fish meal and used in the manufacture of livestock feed.
7. BUILDING: Shells of oyster and periwinkles are sometimes mixed with cement and sand for building houses. The periwinkles make the wall stronger and highly attractive.
8. INCOME

PRESERAVATION OF FISH

This process involves keeping harvested fish long enough to ensure they maintain a very level of freshness before consumption. Preservation prevents spoilage, injury or destruction and this keeps the fish in edible condition for a long time. Harvested fish if not well stored will get spoilt and cause great loss to the farmer hence the need to elongate its shell life. Preservation can be carried out in any of the following ways:

1. Salting /curing: application of salt in the fish which prevent the growth of spoilage organisms should be practiced. A well salted fish can stay long without spoilage provided the fish was originated fresh.
2. Smoking: this is the drying of fish over a fire. This reduces the moisture content and improves the taste and flavor of the fish.it also gives colour to the fish. The fish must be constantly reheated and aerated and kept away from flies to make it fit for consumption.
3. Canning: this involves the storage of the processed and consumable fish in cans under special conditions for future consumption and sealing the cans so that air cannot pass into them. For example geisha, sardine etc.
4. Sun drying: this involves the drying of fish using the direct heat from the sun called solar energy .here, the fish can only be stored for a short time.it is common in north Nigeria it is simple and slow. It is not easily practiced in southern part of high humidity.
5. Freezing /refrigeration : this is called chilling .this involves the use of cold storage like deep freezers and refrigerators to store fish over a long time at very low temperature, where bacteria becomes inactive until the fish are needed. Storage can be done as long as possible provided the system is on.
6. Conversion to feed meal: parts of fish (especially parts that are damaged or not good for human consumption) are dried and ground into powder known as fish meal.
7. Roasting: this involves burning fish over a fireplace for a short moment.
8. Icing: this involves lacing ice block over harvested fish in a container this method is temporary.

Some of the aims of preservation

1. To retain the quality and quantity of fish
2. To increase the shelf life of the fish
3. To develop different types of fish food
4. To maintain all season supplies.
5. To avoid spoilage caused by micro organisms

Processing of fish

Processing is the changing of food materials from one form to another.it involves the removal of inedible part and changing the fish from one form into a preservable form. these are examples of thins removed during processing gut, scales, gills, bones, and fins.by product of fish processing includes fish meal, fish scale, cod liver and fish skin.

Fish harvesting: harvesting is the collection of fish from a pond for consumption, preservation or for sale.

Methods of fish harvesting

Fishing methods involve the use of different techniques or equipment used or for sale.

1. Netting: this involves the use of nets to catch fish. Examples include gill nets, clap net, trawl net, scoop net, beach net, dragnet, drifting or floating nets, cast nets etc. nets are woven to various sizes and thickness and thrown into the water to catch fish.
2. Nets: these are made from fine cotton or nylon. The thread is lowered into the water .the small weight made of lead is attached to the edges of the net which helps them to sink to the bottom of the water.
3. Trapping: this is the setting of traps to catch fish, gears made from ropes or raffia are woven into various sizes for catching fishes.
4. Hook and lines: this involves the use of hooks tied to a strings then set along a watercourse. The hooks are baited with food to attract the fish.
5. Use of ultrasonic: this is an instrument that makes sound in the water to attract fishes. other means of harvesting like a net can later be used to pack them.
6. Electrofishing: this is the use of electric field connected to the water to make the fishes become electrocuted.it can only be used for the total harvesting of fish.
7. Pot and gourds
8. Fishing without equipment

Basic laws and regulations fishery in Nigeria

Fishery regulations are the exploitation and other practices of fishery resources.

The regulation includes the following:

1. Population control: this involves the process of cannibalism where fish types like catfish are made to eat other fish like tilapia or early harvesting to prevent overpopulation
2. Regular stocking: this is the introduction of compatible species of fish to increase the population of fishes in the water.
3. Ban on use of poisonous chemicals: the use of poisonous chemical like gammalin 20 is prohibited as it kills both young and old fishes.
4. Landing tax: landing tax is used such that total catch and sizes of fishes are taxed at the site of landing.
5. Prevention of vessels: no vessels (except canoes) is allowed to fish within the first two(2) nautical miles of the Nigeria continental shelf.

ASSIGNMENT

1. Describe four methods of fish harvesting
2. State four ways of preserving harvested fish.