

Indigenous Technical Knowledge In Duck Farming



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NATP on Productivity Enhancement of Ducks

Centre for Advanced Studies in Poultry Science

College of Veterinary and Animal Sciences

Kerala Agricultural University

Mannuthy



INDIGENOUS TECHNICAL KNOWLEDGE IN DUCK FARMING

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ABOUT THIS BOOK

Kerala is the home land of indigenous Kuttanad Ducks. These ducks are hardy in nature with high production potential and good egg size. They are being reared by the farmers for more than a century in a traditional manner. Many of the farming practices followed by them are note-worthy examples of Indigenous Technical Knowledge (ITK), which has been practiced over generations. The ITK identified during the period of the National Agricultural Technology Project is documented in this publication.

Authors

INTRODUCTION

Kerala lies in the southernmost part of India (between 8°-18" and 12°-48"N and 74°52" and 77°22"E) with a coastal stretch of 590 km. A unique system of duck farming is practiced in the state utilising only the indigenous ducks and rearing them under nomadic system of management. This duck production system is closely associated with rice harvesting seasons. Kerala has a duck population of 1.19 million in an area of 38863 sq. km. As paddy fields, inland freshwater bodies and canals are plenty in the Kuttanad region of Alappuzha district, duck rearing in Kerala is concentrated in this region. The vast stretches of paddy fields of Kuttanad lie one metre below MSL.

The paddy fields in entire Kerala after harvest forms a potential and low cost feeding source for the herded ducks. Duck eggs fetch premium price in Kerala and duck meat is preferred during festivals like Christmas and Easter. This eco-friendly farming system has been in vogue for more than a century because of its valuable functions such as self-employment of rural farmers, utilisation of fallen and wasted grains, biological control of pests and manure enrichment of rice fields.

The duck farmers adopt a large number of Indigenous Technical Knowledge (ITK) practices in the management of ducks. They are applied in brooding, housing, feeding, medication and packing of eggs. These practices have been refined through several generations and are very economic and efficient. The common ITK practices followed were studied and documented.

METHODOLOGY

A field survey was conducted during 2000 and 2001 at the traditional duck growing areas in Alappuzha, Thrissur and Palakkad districts of Kerala to identify farmers engaged in duck rearing. Seminars were conducted at these places to interact with the farmers. The duckling flocks at Alappuzha were visited at frequent intervals for a first-hand study of the practices followed in the major seasons of rearing. Field visits to various duck layer units of Alappuzha, Thrissur and Palakkad regions were also taken up to study the husbandry practices. The duck hatcheries located at Alappuzha were also contacted to document the hatchery practices, hatching seasons and duckling supply patterns. Apart from this, personal interviews were also conducted with caretakers for the practices followed in the management of the flock. Photo documentation of the day-to-day practices followed in duckling, grower and layer flocks was also done. The information about the marketing methods and the transport of ducks were gathered from the duck egg dealers and transporters.



MASS BROODING OF DUCKLINGS WITHOUT SUPPLEMENTARY HEAT

Background

Kuttanad in Alappuzha district is the center of duckling production and nursery rearing in Kerala. The nurseries are set up in remote places, which have no electric supply. The ducklings are reared in large groups of 2000 to 10000 during December and January months, which is the cold season in Kerala. The ducklings are to be protected from chilling. The brooding technology was adapted and perfected over generations

Description

Temporary sheds with thatched roof were conventionally used for duckling brooding. At present, plastic tarpaulin is also being used as the roofing material. For 5000 ducklings, a shed of size 6.6m X 5.2m is required. The height of the shed is 2.25m at center and 1.25m at sides. The sides are covered with plaited coconut palm leaves. The floor is made of sand, which absorbs the moisture of the droppings and prevents the floor from being soiled. The low height of the shed helps to conserve heat. The ducklings are allowed inside the shed only during nighttime.

The shed is partitioned into compartments to prevent huddling. The two ends are covered with bamboo mesh or plastic net to allow air circulation.

A run area is provided in front of the shed, the floor of which is spread with tarpaulin or plastic sheets. The feed is provided in this area and water provided in separate place or on the sheet itself. The ducklings are confined to nursery shed for five to seven days only. Thereafter, they are taken for swimming daily and brought back for feeding and watering. The ducklings are allowed to remain outside the shed during night from 3rd week onwards since they outgrow the shed. This nursery rearing is practiced up to 1 month of age only. Thereafter they are taken to harvested paddy fields for feeding.

Utility

The technology is very efficient with a livability of 92-95% for first month of age. It is a low cost technology independent of electricity or other energy sources. Therefore it is applicable in remote areas.

Geographical area

The ITK is practiced in Alappuzha district of Kerala in the duckling growing areas like Muttar, Pallippad and Chennithala.



EXTENSIVE DUCK FARMING



Duck Nursery

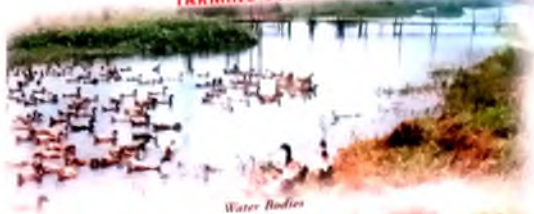


Ducklings - Swimming



Young Farmer

FARMING SCENARIO



Water Bodies



Herding



Flocking Places



2

OPEN RANGE HERDING SYSTEM FOR LAYER DUCKS

Background

Layer ducks are reared in an open range system in Kerala. They are taken to harvested paddy fields for feeding everyday which are located in remote places. There is frequent change of place since the flock has to move to other fields in search of feed. Therefore permanent structures are not feasible for housing layer ducks. A technology was developed for housing layer ducks during night.

Description

An elevated dry area near paddy field / canal / river which does not become muddy is selected. The selected area is open without shades which receive sunlight during day time. A plastic net /bamboo mesh of 1 m height is used to make circular enclosure. The net is attached to pointed poles for fixing it on the ground. The entrance is provided at one place only. Some farmers provide two parallel circular nets, which helps to prevent predator attack on ducks resting near to the net. A circle with a circumference of 40m (radius of 6.5m) is required for 1000 ducks

that provides 1 to 1.5 sq. ft. per duck. Bedding of paddy straw is provided to minimize soiling if the eggs are to be used for hatching purpose. The ducks are herded in at dusk and let out at dawn. The eggs are collected from 5 to 6 a. m. The caretakers sleep in a tent set up near to the duck enclosure and keep watch in turn.

Utility

The technology is very cheap and efficient. The enclosure being circular gives maximum area for a given perimeter. The ducks are hardy and resting in the open area during night-time does not affect the health. Since the area gets sunlight during daytime, the herding area dries off and it provides natural disinfection. The net, which is made of light materials, is easily affordable, portable and cheap

Geographical area

The technology is adopted throughout Kerala in all duck growing areas especially Alappuzha, Kottayam, Ernakulam, Thrissur, Malappuram, Kannur and Palakkad districts.

CORYPHA PALM PITH LEAN SEASON FEED FOR DUCKS

Background

The duck farmers of Kerala utilize the feed materials available in the harvested paddy fields and they move the flocks to different paddy growing areas of the state. But the availability of this feeding is for only 8 months and the rest of the months are lean season. In order to maintain the ducks during lean season, supplementary feeding has to be adopted. Cheap feeding materials are utilized for this purpose since it involves expenditure on the part of the farmers. The pith of *Corypha* palm is one material discovered and utilized for feeding ducks.

Description

The palm tree belongs to the family *Palmae* and it is scientifically known as *Corypha umbraculifera*. The tree is locally called 'Kudappana' (Mal.) and it grows naturally in the middle Kerala. The adult palm tree grows to a height of 70 ft with a girth of 42 inches. The trunk is cut into pieces of 1.5 m and transported to Kuttanad in trucks. The hard outer cover is removed and the

pith is finely chopped and fed as such to ducks. It may be mixed with other feed items also. One palm tree is sufficient for 800 ducks for two months @ 100g/day/duck. Only the quantity required for the day is chopped and the balance is kept covered .

Utility

The pith is rich in starch and is a good energy source. It is very palatable since it contains soluble sugars also. The material is cheap and available locally. The cost of palm is Rs. 1000–1500 per palm plus cutting and transportation charges

Composition (Per cent on dry matter basis)

Moisture	Ash	Protein	Fat	Fibre
42.1	1.6	10.9	13.1	8.6

Geographic area

The technology is adopted in Kuttanad area of Kerala. The palm occurs naturally in central and north Kerala.

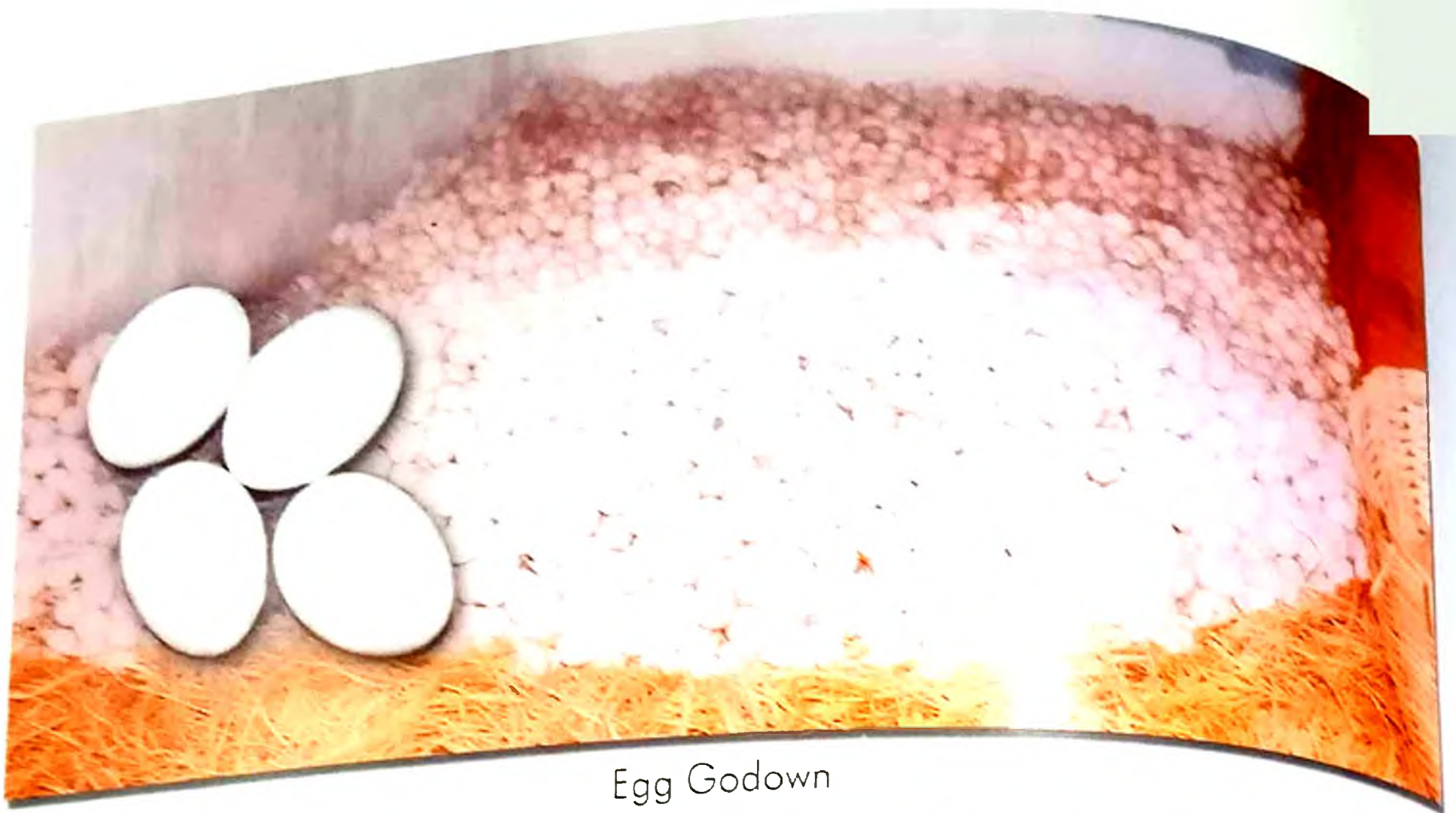


CORYPHA PALM TREE



Corypha Trunk Pieces

EGG PACKING



Egg Godown



Packing Eggs in Wooden Boxes

4

MASS PACKING OF DUCK EGGS

Background

Duck farmers take the flocks from place to place in search of harvested paddy fields. The eggs produced are to be transported to the egg dealer/market. Since filler flats are not readily available in remote areas and the egg size is large, a low cost mass packing technology was developed. This technology uses wooden crate with paddy straw as packing material.

Description

The egg-packing crate is 40 cm long, 40cm wide and 50 cm tall with a capacity 400 eggs. One layer of paddy straw and one layer of eggs are alternated and it is finally covered with paddy straw. The structure is made of 2 cm thick wooden pieces nailed together. The sides are made wooden pieces 7.5 cm wide and 0.5 cm thick, which are fastened on the frame with a gap of 3 cm in between. The base made of wooden reapers with 1 cm gap. The crates can be loaded one over the other for transportation. The wholesale transaction of duck eggs is done on box basis.

Utility

The technology is simple and low cost using cheap wood. The gaps provide aeration, which preserves the quality of eggs. Damage to eggs is minimal since the shell thickness is high.

Geographic area

All over Kerala in the duck growing areas.

5

MEDICATION FOR DUCKLINGS MADHURAKASHAYAM

Background

Ducklings can contract many diseases in their early age. But readymade medicines were not available when the nursery practice started. Therefore an ayurvedic preparation for improving the general health and stamina and to prevent common ailments in early phase of growth was developed and utilized.

Description

Madhurakashyam is prepared from the following ingredients

Sl.	Local name	Common name	Botanical name	Quantity
i	Vayambu	Sweet flag	<i>Acorus calamus</i> L.	100g
ii	Kurumulaku	Pepper	<i>Piper nigrum</i>	20g
iii	Manjal	Turmeric	<i>Cucurma longa</i>	100g
iv	Karuppetti	Jaggery from	<i>Borassus flabellifer</i>	300g
v	Water			25 lit

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The items 1 to 4 are pulverized, mixed with water and boiled for 15 minutes. The broth is provided to ducklings during the first week instead of water.

Utility

The medicine is an ayurvedic preparation and it provides disease resistance to ducklings and improves stamina. The technology is cheap and effective and there are no side effects. The ingredients are available locally and it is easy to prepare.

Geographic area

Duck farmers in the duckling growing areas of Alappuzha district i.e. Muttar, Pallippad, Chennithala utilize this ITK.

6

BILL BRANDING FOR IDENTIFICATION OF DUCKS

Background

Many farmers in a locality rear ducks. When they are let out for foraging, they may intermingle accidentally. Some ducks may also be isolated when they stray away from the flock. Identification of the ducks thus becomes a necessity.

Description

The ducklings are marked for identification before they are let out into the harvested fields. The bill of the ducks is easily visible and so this part of the body is marked permanently for identification. The iron ribs of umbrella are commonly used for branding. The tip of the thin iron rod is made red hot and the bill is branded on one side as a horizontal or perpendicular line in all ducklings. The position of the line may be at the tip, middle or rear part of the bill. Some farmers make two lines if another farmer has already put one line. Conventionally, each farmer has his own distinct type and place of line on the bill in a locality. The mark is permanent and is retained for whole life.

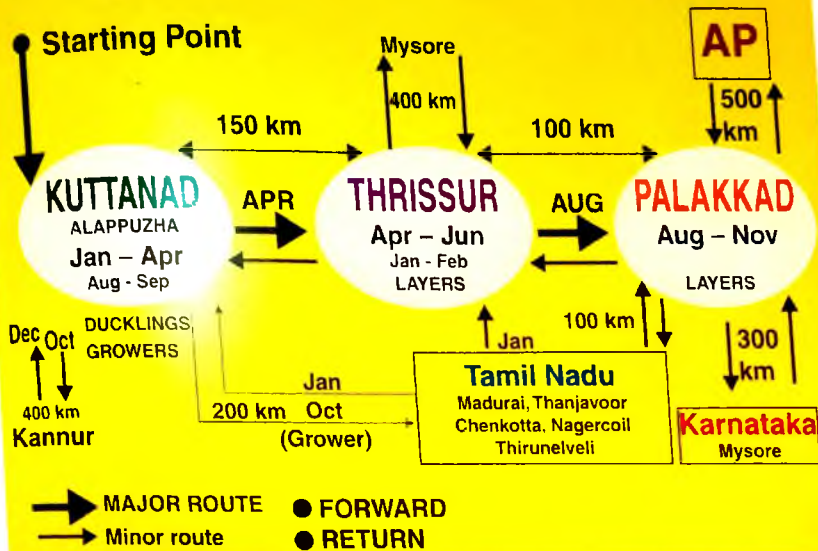
Utility

The branding produces a scar, which is permanent. Since bills are the uppermost part of the body, identification is easy. The technology is simple, cheap and efficient.

Geographical Area

Duck farmers of Alappuzha, Thrissur and Palakkad districts of Kerala practice this technology.

DUCK FLOCK MOVEMENT IN KERALA



Specially Designed Trucks



SPECIALY DESIGNED TRUCKS FOR TRANSPORTATION OF DUCKS

Background

Duck farming in Kerala is an open range system utilizing harvested paddy fields as feeding ground. When the feed gets exhausted in one area, the ducks are to be shifted to another area. Swimming through canal covers short distances. When the whole area is exhausted, the ducks has to taken to far away places. The rice harvest season also varies in different parts of Kerala. The ducks are also shifted from place to place in tune with the harvest seasons.

Description.

Specially designed trucks are used for the long distance transport of ducks. Large trucks can carry 2000 ducks whereas small trucks carry only 1200 ducks. The trucks have four tiers, each of 1.5 feet height. The floor is made up of wooden planks. The sides and top are made of wooden reapers fitted with a gap of 2 inches in an iron frame. A door of size 1.5x1.5 ft is provided at the rear end for each tier. Each compartment holds 500 ducks in large trucks and 300 ducks in small trucks. The ducks are

transported during night-time or early in the morning to minimize stress. They are caught by the neck and loaded into the compartments. The caretakers accompany the ducks and they are unloaded quickly when they reach the destination.

Cost of transport – Large truck Rs. 14 per km

Small truck Rs. 13 per km

Utility

The technology ensures fast movement of ducks from place to place. There is no huddling and death during transportation.

Area

The specially designed trucks are utilized throughout Kerala in all seasons.

BIOLOGICAL CONTROL OF PESTS USING DUCKLINGS

Background

The ducklings are hatched out one month before the harvest in Kuttanad so that they can be taken to harvested fields at one month of age. When the rice plant is young, there is space for the ducklings to swim in between them. Since the ducklings catch and eat larvae and insects, the pests if present will be eaten away.

Description

Ducklings of one to three weeks of age are allowed to swim through the rice plants in the field. They are let in thorough one end and come out at the other side of the field. Ducklings are permitted to enter only up to the panicle initiation stage of the rice plant. The ducklings feed upon the larvae and insects of all the pests of rice like brown hopper, caseworm etc. The rice farmers also opine that the pest incidence is considerably reduced after allowing ducklings to swim through the young plants. Since the pest attack is reduced by biological method without using any chemicals, the eco system is maintained and pollution could be averted. Farmers request the duck farmers to take the ducklings

to the paddy field when pest attack is suspected in the duckling growing areas.

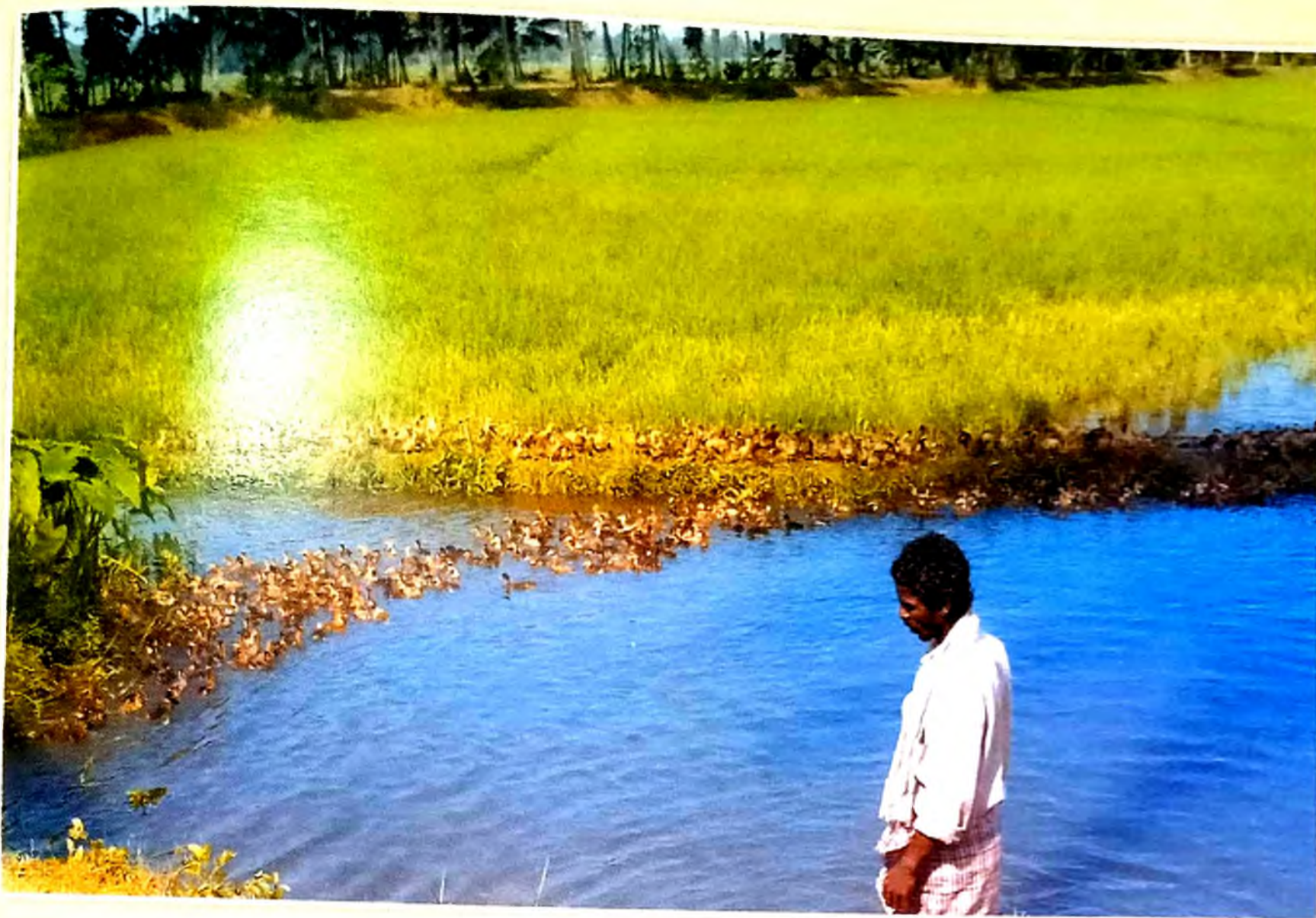
Utility

The technical knowledge is eco-friendly, effective and helps to reduce pollution in the rice fields.

Geographical area

This practice is followed in the Kuttanad region of Alappuzha district.

DUCKLINGS IN THE RICE FIELD-BIOLOGICAL CONTROL OF PESTS





9

MASS PRODUCTION OF DUCKLINGS THROUGH NATURAL INCUBATION

Background

The Kuttanad ducks are non-broody and hence they do not hatch their young ones. Ducks are reared in flocks of one age group so that management is easy. Therefore a technology for mass production of ducklings was developed in remote areas where incubator and electricity was not available.

Description

In this method, broody hens are utilized for natural incubation of duck eggs. The incubation is carried out in houses by women folk who keep 15 to 20 numbers of indigenous female chicken. The farmers distribute hatching eggs to the households at the start of the hatching season. Each hen, depending on its body size, can incubate 8 to 10 eggs. The incubation is carried out in bamboo baskets, wooden crates or earthen pots made for this purpose. The incubation period is 28 days and the farmers collect the ducklings at the end of incubation. Remuneration is based on the number of good ducklings returned. Each duckling fetches Rs. 2 to 2.5 as incubation charges to the womenfolk. Hatchability

varies from 50 to 80 %. Special care is given to the broody hen for feeding and watering. Cooked rice is given to prolong the broodiness. A separate shed is earmarked for this activity in such houses for this activity. The farmer has to hatch out double the number of ducks that he propose to rear since only 50% are females.

Utility

The technology is low cost and useful. The farmers and households are benefited in this activity. It is applicable in remote areas where electricity and modern incubators are not available.

Geographical area

Custom hatching of ducklings is now practiced in several parts of Tamilnadu especially Villupuram and Chengalpet areas. This practice was also in vogue in Kerala in the Kuttanad region about 20 years ago. But when incubators became available, it was slowly discontinued.



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