



K.L.E.Society's
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE COLLEGE,
CHIKKODI – 591201 District – Belagavi (Karnataka state, India)
(ACCREDITED AT 'A' GRADE BY NAAC WITH CGPA OF 3.26 IN THE THIRD CYCLE)

Department of Zoology (2019 – 20)

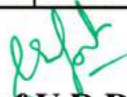
PROJECT WORK COMPLETION CERTIFICATE

This is to certify that following nine B.Sc Final year students have undertaken the project entitled **Local breeds of Buffalo at Chikodi** in-partial fulfillment of the syllabus of Rani Channamma University, Belagavi during the year 2019-20. Following nine students have together successfully completed the said project under the guidance of Dr Sridevi I Puranik.

Sl. No	Gender	Name of the student	Fathers name	Roll Number	Exam Seat Number
1	Mr.	Shubham Jakate	Ramachandra	159	S1715789
2	Mr.	Sachin Kore	Ramu	156	S1715738
3	Mr.	Manjunath Bhoje	Mahadev	170	S1715668
4	Mr.	Chetan Sadalge	Suresh	212	S1715637
5	Mr.	Preetam Pawar	Ashok	174	S1715701
6	Mr.	Aniket Bekkeri	Kallappa	147	S1715617
7	Mr.	Aroodh Mallapure	Mallikarjun	163	S1715623
8	Mr.	Pratik Kattimani	Shashidhar	173	S1715697
9	Mr.	Raghunath Pawar	Annasab	237	S1715715


Dr Sridevi I Puranik
PROJECT GUIDE


Dr N R Birasal
HEAD
DEPARTMENT OF ZOOLOGY


Prof U R Rajput
PRINCIPAL
KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

Project Team Members

Sl. No.	Gender	Name of the Student	Fathers Name	Roll Number	Exam Seat Number
1.	Mr.	Shubham Jakate	Ramachandra	159	S1715789
2.	Mr.	Sachin Kore	Ramu	156	S1715738
3.	Mr.	Manjunath Bhoje	Mahadev	170	S1715668
4.	Mr.	Chetan Sadalge	Suresh	212	S1715637
5.	Mr.	Preetam Pawar	Ashok	174	S1715701
6.	Mr.	Aniket Bekkeri	Kallappa	147	S1715617
7.	Mr.	Aroodh Mallapure	Mallikarjun	163	S1715623
8.	Mr.	Pratik Kattimani	Shashidhar	173	S1715697
9.	Mr.	Raghunath Pawar	Annasab	237	S1715715

ACKNOWLEDGEMENT

It gives us pleasure to have an opportunity here, to acknowledge and to express our gratitude to all those who have been helped to carry our project. Although it is impossible to give individual thanks to all we remember here we are grateful to one and all.

We are indebted to our beloved Principal **Prof. U. R. Rajput** for his all kind of help in this regard. With deep sense of gratitude let us express indebtedness to **Dr. N. R. Birsal**, Head Department of zoology for his support and for his helpful hands in carrying this project successfully.

We sincerely thankful to our guide **Prof. Mrs. S. I. Puranik** Assistant professor for her constant guiding throughout this project work.

We are also thankful to the owner of Baragale farms, Kadapur, Chikodi who gave us the information of all the breeds, milk production, maintenance of fodder and farm.

CONTENTS

Sl. No.	Title	Page. No.
1.	Introduction	1
2.	Farm	3
3.	Murrah	4-5
4.	Mehsana	6-7
5.	Pandharpuri	8-9
6.	Surti	10-11
7.	Jaffarabadi	12-13
8.	Nagpuri	14-15
9.	Conclusion	16
10.	References	17

INTRODUCTION

The specific group of domesticated animals with a homogenous appearance, behavior and other characteristics that distinguish them from other animals of the same species arrives through selective breeding (Ciptadi *et al.*, 2019). Animal breeding is a segment of animal science that addresses the evaluation of the genetic value of domestic live stock.

Objectives of Buffalo breeding

- Scientific way of approach is should be made in the maintenance of the farms.
- To enhancing the productivity of livestock.
- Creating the awareness among the farmers about In-situ& Ex-situ conservation of breeds

Economic importance

Economic importance implies both production of high quality and quantity milk. It enhances the growth of disease resistance varieties against the wild climatic conditions. It has market value as the domesticated livestock to the other countries. The coat of the buffalos used in the leather production (tanning process). The dung is used in the major production of biogas and manure. It's also used in the development of new desirable trait buffalos (Ganguly, 2018). Buffalos are being raised to get good quality of beef. Rearing of buffalos in a form provides an opportunity to get employed.

Breeding systems

1. **Pure breeding:** It is an organism that always passes down certain phenotypic traits to its offspring of many generations.
2. **Inbreeding:** It is a process of mating of genetically similar organisms.
3. **Out crossing:** The crossing between different breeds and no common ancestors.
4. **Cross breeding:** A cross breed is an organism with pure bred parents of two different breeds, varieties or populations.
5. **Single trait selection:** The quickest way to make progress in that individual trait.
6. **Balanced trait selection:** A number of selective processes by which multiple alleles are actively maintained in the gene pool of a population at frequencies larger than expected from genetic drift alone.

Types of breeds

I. Indigenous breeds: Indigenous breeds are the ones which developed in the particular area (Ksheersagar, 2018; Pant & Mukherjee, 1971).

a. Murrah group

1. Murrah
2. Nilliravi
3. kundi
4. Godavari

b. Gujarat group

1. Surti
2. Jaffarabadi
3. Mahsana

c. Utter Pradesh group

1. Bhadawari
2. Arai

d. Central India group

1. Nagpuri
2. Pandhepuri
3. Manda
4. Jeangi
5. Kalhandi
6. Sambalpur

e. South India group

1. Toda
2. South kinara

II. Exotic breed: exotic breeds are the ones which have come from the other countries or originally belong to other countries.

1. Australian buffalo (Australia)
2. Azeri (Iran)
3. Baio (North Brazil)
4. Azikheli (Pakistan)
5. Bangadeshi (Bangladesh)

Student Project: "Local breeds of Buffalo at Chikodi"

6. Bulgarin (Bulgaria)
7. Egyptian (Egypt)
8. Burmese (Burma/Myanmar)
9. Lime (Nepal)
10. Carabao (Philippines)
11. Parkote (Nepal)

Buffalo breeding farms at Chikodi

1. Bargale farms, Chikodi

It is located at Kadapur, Chikodi owned by Shri. Ramu Baragale. The farm covers the area of about 60/30 square feet. The farm has 55 varieties of buffaloes. The farm is well maintained by 4 employees of the farm. It is well ventilated present in the mid-city of Chikodi taluk hence is reachable to local as well as outside market. The initial investment of farm is 7lac, income 25000 per week. The farm is rectangular in shape, having 3 columns with 20 buffalos in each, water and fodder is supplied 3times a day, milking is done 2 times a day using machines, washing is done everyday (Kornel, 1999).

2. Mallikarjun farms, Chikodi

It is located at Kerur, Chikodi owned by Shri. Mallikarjun kore. The farm covers the area of about 40/20 square feet. The farm has 30 varieties of buffaloes. The farm is well maintained by 3 employees of the farm. It is well ventilated present in the mid-city of Chikodi taluk hence is reachable to local as well as outside market. The starting invest of farm is 4lac, income 18000 per week. The farm is having 2 columns with 15 buffalos in each, water and fodder is supplied 3times a day, milking is done 2 times a day (hand milked), washing is done every day.

1. Murrah



- **Breed local name:** Murrah
- **Taxonomic classification**
 - Kingdom-Animalia
 - Phylum-Chordata
 - Class-mammalia
 - Order-Artiodactyl
 - Family-Bovidae
 - Genus-Buvalus
 - Species-Buvalus bubalis
- **Breed registration by AnGR/Accession number:**
(INDIA_BUFFALO_0500_MURRAH_01001)
- **Location:** Kerur
- **Peculiar characters:**
 - Most commonly called as water buffalo. There are two varieties of its
 - a.** swamp buffalo=48 chromosomes and **b.** River buffalo having 50 chromosomes.
 - Found in north-west of the sub-Indian continent, buffaloes have long been selected for milk yield and curled horn.
 - It is the most important well-known buffalo breed in the world. Population size: 2,000,000.

Student Project: "Local breeds of Buffalo at Chikodi"

- **Physical characters**

- i. Black in colour, massive and stocky animal, heavy bones, horns are short and tightly curl red, placid.

	HEIGHT (cm)	WEIGHT (kg)
MALE	142	750
FEMALE	133	650

- ii. Buffalos are traditionally managed in domestic conditions together with the calf. They are hand milked twice a day, they are fed different kinds of roughages (barley & wheat straw, cornstalks, sugarcane residuals)
- iii. In addition, they are given concentrate (Hindi) mixtures, if grazing is available, they graze all day long, they are naturally mated. Some villages also provide artificially insemination.
- iv. From its origin in center of Haryana, it has spread to the Punjab, Ravi & Sutley valleys, North Sindh & Uttar Pradesh. It has been exported to Brazil, Bulgaria & many countries of eastern Asia.

- **Dairy yield**

Milk yield per lactation	=	1750 kg
Lactation length per day	=	4.3 kg
Milk fat	=	6.5 to 9.5%
Products	=	milk, curd, butter, ghee, cheese

3. Mehsana



- **Breed local name:** Mehsani or Mahesani
- **Taxonomic classification**

Kingdom-Animalia
Phylum-Chordata
Class-mammalia
Order-Artiodactyls
Family-Bovidae
Genus-Buvalus
Species-Buvalus carabenensis

- **Breed registration by AnGR/Accession number:**
(INDIA_GOAT_0400_MEHSANA_06016)

- **Location-**Anakli

- **Peculiar characters**

- The existence of the meshana breed in north Gujarat (India) is referred to in 1940. it is the result of a selection of Indian breeds of buffalo.
- Population size is 400,000
- Characters' are intermediate between surti and murrh. jet black skin and hair are preferred. horns are sickle shaped but with more curve than the surti. The udder is well developed and well set. Milk veins are prominent.
- The body is longer than murrh but limbs are lighter, these are also good for heavy work.

Student Project: "Local breeds of Buffalo at Chikodi"

- v. The breed is known as persistent milker and regular breeder.

• Physical characters

	HEIGHT (cm)	WEIGHT (kg)
MALE	138	570
FEMALE	128	439

- i. Eyes are very prominent. Black and bright, bulging from their socket with folds of skin on upper lids.
- ii. Buffalos are traditionally managed under domestic conditions together with the calf. They are hand milked twice a day.
- iii. They are fed different roughages (barley, wheat straw, cornstalks, sugarcane residuals) in addition they are given concentrated mixtures if grazing is available, they graze all day long. they are naturally mated.
- iv. Some villages artificially inseminated.

• Dairy performance

Milk yield per lactation	= 1200kg
Lactation length per day	= 4.37kg
Milk fat	= 5 to 9.5%
Products	= milk, curd, butter, ghee, heese, paneer

4. Pandharpuri



- **Breed local name:** Pandharpuri
- **Taxonomic classification-**
 - Kingdom-Animalia
 - Phylum-Chordata
 - Class-mammalia
 - Order-Artiodactyls
 - Family-Bovidae
 - Genus-Buvalus
 - Species-Buvalus bubalis
- **Breed registration by AnGR/Accession number:**
INDIA_BUFFALO_1100_PANDHARPURI_01008
- **Location:** kadapur
- **Peculiar characters**
 - The pandharpuri buffalo is dairy buffalo breed and raised mainly for milk production. It had royal patronage from Kolhapur for supply of fresh milk to the wrestlers of Kolhapur
 - These animals also famous for their better reproductive ability, producing calf every 12 to 13 months.
 - Its medium sized animal having long narrow face, very prominent and straight nasal bone comparatively narrow frontal bone and long compact body.

Student Project: "Local breeds of Buffalo at Chikodi"

- iv. Its horns are very long, curved backwards and usually twisted outwards.
- v. The majority of animals are black with white markings found on the forehead, legs and switch of tail.
- vi. The animals are docile in temperament.
- vii. The tail is long and reaching below its hock.

	HEIGHT (cm)	WEIGHT (kg)
MALE	135	470
FEMALE	130	450

- **Dairy performance**

Milk yield per lactation = 1790kg

Lactation length per day = 5.11kg

Milk fat = 8%

Products = milk, curd, butter, ghee, cheese, paneer

5. Surti



- **Breed local name:** Gujrati
- **Taxonomic classification**
 - Kingdom-Animalia
 - Phylum-Chordata
 - Class-mammalia
 - Order-Artiodactyls
 - Family-Bovidae
 - Genus-Buvalus
 - Species-Buvalusarnee
- **Breed registration by AnGR/Accession number-**
(INDIA_BUFFALO_0440_SURTI_01005)
- **Location** –kadapur
- **Peculiar characters**
 - The surti buffalos are of medium size and docile temperament
 - Horns are sickle shaped and flat which grows in downward and backward direction

Student Project: "Local breeds of Buffalo at Chikodi"

- iii. The breed has got a fairly broad and long head with a convex shape at the top in between horns
- iv. The skin colour is black or brown.
- v. Surti is additionally called as gujarati, nadiadi, deccani.
- vi. Surti breed has got a unique straight back good specimens have two white collars.
- vii. The coat colour of surti breed is rusty brown or silver grey.
- viii. The udder is well developed, finely shaped and squarely placed between the hind legs
- ix. The tail is fairly long, thin and flexible ending in a white tuft.
- x. Regular estrous cycle and easy conception is its speciality.
- xi. This breed eats a lot of straw and grains, oil seeds and we can add the leguminous fodder to compensate for nutrient deficiencies

	HEIGHT (cm)	WEIGHT (kg)
MALE	130	499
FEMALE	125	408

- **Dairy performance**

Milk yield per lactation = 1600 to 1700 kg

Lactation length per day = 5.5 kg

Milk fat = 7 to 7.5%

Products = milk, curd, butter, ghee, cheese, paneer

6. Jafarabadi



- **Breed local name:** Jaffari

- **Taxonomic classification**

Kingdom-Animalia

Phylum-Chordata

Class-mammalia

Order-Artiodactyls

Family-Bovidae

Genus-Buvalus

Species-Buvalus bubalis

- **Breed registration by AnGR/Accession number:**

(INDIA_BUFFALO_0400_JAFFARABADI_01006)

- **Location:** Kadapur

- **Peculiar characters**

- Jaffarabadi is the heaviest of all the Indian breeds of buffalos
- It's also called as bhavnagri, gir or jaffari. The breed is named after the town of jaffarabad
- The head and neck are massive. The fore head is very prominent and wide with slight depression in the middle.
- The horns are heavy, inclined to droop at each side of the neck and then turning up at a point, but less tightly curved than murrhah
- The colour is usually black, but few animals having a grey colour and white spots on fore head. Feet and tail switch are also same. The bullocks are heavy and used for ploughing and carting.

Student Project: "Local breeds of Buffalo at Chikodi"

- vi. Head- the bone of the forehead is white and covers the eyes partially to give its characteristic, Sleepy eyes appearance especially is adult males.
- vii. The udder is well developed with funnel shaped teats, the animals are mostly maintained by traditional breeds called maldharis, who are nomada.

	HEIGHT (cm)	WEIGHT (kg)
MALE	142	600-1500
FEMALE	140	700-800

- **Dairy performance**

Milk yield per lactation = 2150 to 2340kg

Lactation length per day = 6 to 7 kg

Milk fat = 7.7%

Products = milk, curd, butter, ghee, cheese, butter

6. Nagpuri



- **Breed local name:** Barari
- **Taxonomic classification**
 - Kingdom-Animalia
 - Phylum-Chordata
 - Class-mammalia
 - Order-Artiodactyls
 - Family-Bovidae
 - Genus-Buvalus
 - Species-Buvalus
- **Breed registration by AnGR/Accession number:**
(INDIA_BUFFALO_1100_NAGPURI_01007)
- **Location:** Ankali
- **Peculiar characters**
 - These are black colored animals with white patches on face, legs and tail, this breed is also called by name barari.
 - The face is long and thin the neck is somewhat long
 - The horns are long (50-65cm long) flat and curved, bending backwards on each side of the back almost to the shoulders (Reddy, 2019).

Student Project: "Local breeds of Buffalo at Chikodi"

- iv. The nagpuri buffalo has smaller and lighter body when compared to other breed, the neval flap is short or almost absent.
- v. Their limbs are light and tail is squat and short reaching below hocks
- vi. The nagpuri buffalos are moderately good for milk producers. The males are also used for heavy draught but they are comparatively slow.
- vii. They are well adapted to the harsh semi-arid conditions and can with stand extreme climatic conditions as high as 47°C
- viii. Feeding- they are fed with a different kinds of roughages barley and wheat straw, sugar cane residuals, corn stalks. If grazing is available, they graze all day long.

	HEIGHT (cm)	WEIGHT (kg)
MALE	140	522
FEMALE	130	408

- **Dairy performance**

Milk yield per lactation = 1039kg

Lactation length per day = 4kg

Milk fat =8.25%

Products = milk, curd, butter, ghee, cheese, paneer,

CONCLUSION

To conclude the initiation of creating the awareness among the farmers about GMOS to have them in their farmland to serve enough for the rapidly developing human race. The total number of estimated breeds as per our project is 6 which are of the following types:

1. Murrah
2. Mehsana
3. Pandharuri
4. Surti
5. Jaffarabadi
6. Nagpuri

The above all 6 varieties of breeds are mainly concern with the production of high quality of milk and resistant to the environmental stresses.

REFERENCE

- Ciptadi, G., Budiarto, A., Hakim, L., Putri, A. I., Finawati, P., & Ubaidillah, M. H. (2019, March).** The reproductive characters of swamp buffalo in small holder farm in East Java, Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 247, No. 1, p. 012019). IOP Publishing.
- Ganguly, B., Jain, M., & Pandey, K. (2018).** Unit-14 Food Production and Management. IGNOU.
- Kornel, D. (1999).** *Livestock and Poultry Dynamic in Tribal Life: Koraput*. Modern Book Depot.
- Ksheersagar, V. H. (2018).** *Critical Analysis of Risk Management Involved in Maintenance of Livestock and its Effect on Rural Economy* (Doctoral dissertation, Savitribai Phule Pune University).
- Pant, K. P., & Mukherjee, D. P. (1971).** The melanizing activity of the semen of buffalo bulls and its relation to the proportion of live spermatozoa. *Reproduction*, 25(1), 103-105.
- Reddy BK. (2019).** Dairying as a Sustainable Rural Livelihood of the impoverished in Andhra Pradesh with special reference to Chittoor District. *Indian Journal of Lifelong Learning and Development*.