

New Breed of Indigenous Livestock and Poultry

National Bureau of Animal Genetic Resources
Karnal-132 001 (Haryana)

Breed registration committee in its meeting held on 4th August, 2017 at New Delhi approved registration of nine new breeds of livestock and poultry. This includes one breed of cattle, two breeds of goat, and one breed each of horse, pig, yak, geese, duck and chicken. The institute for the first time has registered indigenous breeds of yak, duck and geese. After including these newly registered breeds, total number of indigenous breeds now in the country are 169, which include 41 for cattle, 13 for buffalo, 28 for goat, 42 for sheep, 7 for horses & ponies, 9 for camel, 7 for pig, 1 for donkey, 1 for yak, 18 for chicken, 1 for duck and 1 for geese.

New breeds registered

| S.N. | Breed | Home tract | Accession number |
|----------------|-----------------|-----------------------|---|
| Cattle | | | |
| 1 | Lakhimi | Asom | INDIA_CATTLE_0200_ LAKHIMI_03041 |
| Goat | | | |
| 2 | Salem Black | Tamil Nadu | INDIA_GOAT_1800_ SALEMBLACK_06027 |
| 3 | Sumi-Ne | Nagaland | INDIA_GOAT_1400_ SUMINE_06028 |
| Horse | | | |
| 4 | Kachchhi-Sindhi | Gujarat and Rajasthan | INDIA_HORSE_0417_ KACHCHHISINDHI_07007 |
| Pig | | | |
| 5 | Zovawk | Mizoram | INDIA_PIG_2700_ ZOWAWK_09007 |
| Yak | | | |
| 6 | Arunachali | Arunachal Pradesh | INDIA_YAK_2300_ ARUNACHALI_16001 |
| Geese | | | |
| 7 | Kashmir Anz | Jammu & Kashmir | INDIA_GEESE_0700_ KASHMIRANZ_18001 |
| Duck | | | |
| 8 | Pati | Asom | INDIA_DUCK_0200_ PATI_11001 |
| Chicken | | | |
| 9 | Hansli | Odisha | INDIA_CHICKEN_1500_ HANSLI_12018 |



Lakhimi-male



Lakhimi-female

4. Since when the breed is known
5. Strains (or within breed types)
6. Most closely related breeds/populations (in appearance)
7. a. Native tract of distribution in terms of longitude and latitude
- b. Approximate area of distribution (sq. km)
- c. Place(s)
8. Estimated population
 - a. Year of estimation
 - b. Population
 - c. Source/Reference
9. a. Communities responsible for developing the breed
- b. Description of community (Farmers/Nomads/Isolated/Tribes)
10. Herd book/register established
11. Herd: Average size
Composition
12. Utility of the breed (Milk/Meat/Draught/Manure/others specify)
13. Basic temperament of the breed (Docile/Moderate/Tractable/Wild)

Time immemorial
None
Indigenous cattle of Manipur
Between 89° 42' and 96° E
Between 24° 8' and 28° 2' N
78,438
State: Asom
District(s): All districts (Entire Asom)
2012
7,879,806
19th Livestock Census-2012, A.H. & Vet. Dept., Asom Assamese
Farmers
No
7 (2-100)
Breeding females: 33%, Replacement females (1-3 yrs): 12%, Calves: 16%, Breeding bulls: 2%, Replacement males (1-3 yrs): 8%, Bullocks: 29%.
Dual - milk and draught

LAKHIMI CATTLE

I. GENERAL DESCRIPTION

1. Name of the breed **Lakhimi**
2. Synonyms **None**
3. Background for such a name/origin **The cattle in Asom is considered as symbol of wealth i.e. Lakhimi and accordingly the farmers rear them for up keeping their financial status.**

II. PHYSICAL CHARACTERS

1. Colour
 - a. Coat colour **Brown and Grey**
 - b. Muzzle **Black**
 - c. Eyelids **Black**

| | |
|---|---|
| d. Tail switch | Black |
| e. Hooves | Black |
| 2. Horns | |
| a. Colour | Black |
| b. Size (cm) | Male: 17.23±0.55 Female: 17.13±0.79 |
| c. Shape (Straight/Curved) | Straight |
| d. Orientation | Lateral |
| 3. Ears | |
| a. Length (cm) | Male: 16.71±2.76 Female: 16.65±2.43 |
| b. Orientation (Horizontal/Drooping) | Horizontal |
| 4. Head | |
| Forehead (Convex/Concave/Straight) | Slightly Concave |
| General Description | Head is proportionate to body, forehead is slightly concave, face is narrow and flat. |
| 5. Body | |
| a. Hump (Large/Medium/Small) | Medium in males and small in females |
| b. Dewlap (Large/Medium/Small) | Medium in males, and small and thin in females |
| c. Naval Flap (Large/Medium/Small) | Medium |
| d. Penis Sheath Flap (Large/Medium/Small) | Medium |
| 6. Udder | |
| a. Shape (Bowl/Round/Trough/Pendulous) | Bowl |
| b. Udder Size (Large/Medium/Small) | Small |
| c. Teat Shape (Cylindrical/Funnel/Pear) | Funnel |
| d. Teat Tip (Pointed/Round/Flap) | Pointed |
| e. Milk Vein (Prominent/Not Prominent) | Not Prominent (Small) |

III. PERFORMANCE

1. Body weight (kg)

| Parameter | Male | | | Female | | |
|-----------------|---------|---------|----|---------|---------|----|
| | Average | Range | N | Average | Range | N |
| Birth weight | 15.46 | 12-17 | 44 | 14.67 | 12-16 | 46 |
| 12 month weight | 89.12 | 75-95 | 30 | 84.40 | 70-90 | 42 |
| 24 month weight | 175.30 | 160-190 | 30 | 145.20 | 130-160 | 42 |
| Adult weight | 240.60 | 220-260 | 30 | 185.50 | 170-195 | 40 |

2. Body measurements (cm)

| Parameter | Male | | | Female | | |
|-------------------|---------|---------|------|---------|---------|-----|
| | Average | Range | N | Average | Range | N |
| Chest girth | 131.34 | 120-136 | 1027 | 112.38 | 104-124 | 969 |
| Body length | 92.32 | 89-98 | 1027 | 83.10 | 76-86 | 969 |
| Height at withers | 101.63 | 98-114 | 1027 | 91.48 | 85-94 | 969 |

3. Dairy performance

| Parameter | First lactation | | | Overall | | |
|------------|-----------------|---------|-----|---------|---------|-----|
| | Average | Range | N | Average | Range | N |
| Daily milk | 1.10 | 1.0-2.0 | 149 | 1.25 | 1.0-2.5 | 562 |

| | | | | | | |
|--|--------|---------|-----|-----------------------------|---------|-----|
| yield (kg) | | | | | | |
| Peak milk | 1.65 | 1.5-2.5 | 149 | 1.83 | 1.5-3.5 | 562 |
| yield (kg) | | | | | | |
| Lactation length (days) | 232.60 | 228-245 | 146 | 242.09 | 210-270 | 283 |
| Lactation milk yield (kg) | 304.90 | 270-330 | 146 | 359.40 | 325-375 | 283 |
| Fat% | 5.18 | 4.3-6.6 | 96 | 5.30 | 4.3-6.3 | 292 |
| SNF% | 8.36 | 8-9 | 96 | 8.44 | 8-9 | 292 |
| 4. Reproduction | | | | Average | Range | N |
| a. Males | | | | | | |
| i) Age at first ejaculation (months) | 30.50 | 28-34 | 40 | | | |
| ii) Age at first mating (months) | 32.70 | 30-36 | 40 | | | |
| b. Females | | | | | | |
| i) Age at first oestrus (months) | 37.99 | 32-40 | 719 | | | |
| ii) Oestrus cycle duration (days) | 21.00 | 18-22 | 719 | | | |
| iii) Oestrus duration (hrs) | 20.02 | 17-22 | 719 | | | |
| iv) Age at first mating (months) | 38.50 | 35-43 | 719 | | | |
| v) Age at first calving (months) | 47.75 | 44-49 | 649 | | | |
| vi) Service period (days) | 170.50 | 157-180 | 621 | | | |
| vii) Calving interval (days) | 445.40 | 426-470 | 602 | | | |
| 5. Draught performance | | | | | | |
| a. Purpose (Ploughing, Threshing, Power, etc.) | | | | Ploughing, Threshing, Power | | |
| b. Average duration of work per day (hrs) | | | | 6 | | |
| 6. Drought tolerance | | | | Very Good | | |
| (Excellent/Very Good/Good/Average/Low) | | | | | | |
| 7. Heat tolerance | | | | Very Good | | |
| (Excellent/Very Good/Good/Average/Low) | | | | | | |

SALEM BLACK GOAT

I. GENERAL DESCRIPTION

| | |
|--|--|
| 1. Name of the breed | Salem Black |
| 2. Synonyms | “ <i>Karuppadu</i> ” (In vernacular Tamil language) |
| 3. Background for such a name/ origin | The name “Salem Black” is derived based on the body colour (i.e., complete black body colour) and place of origin i.e., Salem district of Tamil Nadu |
| 4. Since when the breed is known | This breed is probably known for over 50 years as evidenced from the interaction with the farmers. Exact origin of the Salem Black goats is not known. |
| 5. Strains (or within breed types) | Nil |
| 6. Most closely related breeds | No other goat breed in Tamil Nadu has any resemblance (in appearance) with Salem Black goats |
| 7. Classification | |
| a. Size (Dwarf <50 cm; Small 61-65 cm; Large >65 cm) | Large |



Salem Black-male



Salem Black-female

| | |
|---|--|
| b. Utility (Mutton/Milk/Dual/Fibre/Hair or any other) | Meat, Skin and Manure |
| 8. a. Native tract of distribution in terms of longitude and latitude | Between 76°05' and 78°50' E Between 10°35' and 13°01' N |
| b. Approximate area of distribution (sq. km) | 6,483 sq. km in and around the breeding tract |
| c. Place(s) | State: Tamil Nadu District(s): Salem, Dharmapuri, Krishnagiri and Erode |
| 9. Estimated population | |
| a. Year of estimation | 2002 |
| b. Population | 86,676 |
| c. Source/Reference | Gopu P. 2002. Genetic Characterization of Salem Black Goat. M.V.Sc. thesis submitted to the Tamil Nadu Veterinary and Animal Sciences University, Chennai-600 051. |
| 10. a. Communities responsible for developing the breed | “Vanniyar” and “Kongu vellala Gounder” communities of north-western districts of Tamil Nadu |
| b. Description of community (Farmers/Nomads/Isolated/Tribes) | Farmers |
| 11. Flock: Average size | 31 (small flocks <15; medium 15-10; large >40 goats) |
| Composition | Doe: 74.19%, Bucks: 3.22%, Kids: 22.59% |
| 12. Any other information | The major part of the breeding tract lies in north-western agro-climatic zone of Tamil Nadu and the climate is generally hot, semi-arid and tropical in nature. The mean |

annual maximum and minimum temperatures are 34.3°C and 21.9°C, respectively. The mean annual relative humidity recorded at 08.30 h and 17.30 h are 77.2 and 55.1%, respectively. The average annual rainfall is 1112 mm.

II. PHYSICAL CHARACTERS

| | | |
|--|----------------------------------|---|
| 1. Colour | Distinct colour markings, if any | The colour is complete black. Presence of any white spots or markings is considered as disqualification |
| 2. (i) Head profile (Straight/Convex/Slightly convex) (ii) Length (Small <15/Medium 15-25/Large >25 cm) | | Straight Medium in length. Average face length of bucks and does is 19.8±0.29 and 17.7±0.11cm, respectively and corresponding values for face width are 8.9±0.31 and 7.1±0.14 cm, respectively. |
| 3. Ears (Erect/Pendulous/Horizontal) | | Semi-pendulous, leaf-like & medium in size |
| 4. Wattles (Present/Absent) | | Present (in 89% of males & 76% of females) |
| 5. Horns | | Two |
| a. Number | | Round and slender |
| b. Shape | | No typical horn pattern, however mostly directed upward and backward and sharp at the tip |
| c. Orientation | | |
| d. Size (Small <15 cm Medium 15-25/ Large >25 cm) | | Males: Medium (20.0±0.09 cm) Females: Small (13.7±0.05 cm) |
| 6. Coat type (Hair/Cashmere/Pashmina/Mohair) | | Hair. Females have short, straight and sleek hair (<5 cm) on almost all parts of the body. Males have short and soft hairs on entire body except on neck and withers region, where the hair is medium in length |

- (5 to 10 cm), and are straight and rough in nature.
7. Beard (Present/Absent) Present in 43% males and 22% females
8. Any other information
- Salem Black goats are tall, long, lean and leggy animals with compact body.
 - They have long, lean and straight legs squarely set under the body. This body conformation might have been evolved as a result of adaptation to cover long distances during browsing and also to keep the barrel high from the ground.
 - The tail is thin, medium in length and curled upward. The average tail length of bucks and does is 20.4±0.40 and 17.6±0.10 cm respectively.
 - Udder is not well-developed; it is round and tightly attached to the belly with small conical teats placed laterally.

III. PERFORMANCE

1. Body weight (kg)

| Weight at | Male | | | Female | | |
|-----------------|-------|-----------|-----|--------|-----------|-----|
| | Mean | Range | N | Mean | Range | N |
| Birth | 2.27 | 2.2-2.3 | 266 | 2.07 | 2.0-2.1 | 236 |
| Weaning | 8.76 | 8.5-9.1 | 219 | 7.46 | 7.2-7.8 | 199 |
| 6-months | 12.08 | 11.6-12.5 | 179 | 11.03 | 10.6-11.5 | 173 |
| 1 year | 20.69 | 19.8-21.5 | 71 | 16.89 | 16.2-17.6 | 97 |
| Adult (6-teeth) | 38.16 | 34.8-41.5 | 10 | 31.58 | 30.6-32.6 | 115 |

2. Body measurements (cm)

| Parameter | Adult Male | | | Adult Female | | |
|-------------------|------------|-----------|----|--------------|-----------|-----|
| | Mean | Range | N | Mean | Range | N |
| Chest girth | 73.7 | 60.6-88.2 | 50 | 69.2 | 52.0-85.2 | 168 |
| Body length | 70.2 | 58.2-87.8 | 50 | 67.1 | 56.2-84.8 | 168 |
| Height at withers | 80.1 | 64.0-99.6 | 50 | 73.6 | 63.0-99.0 | 168 |

3. Carcass characters

| Trait | Male | | | Female | | |
|--------------------------------------|-------|------------|----|--------|-----------|----|
| | Mean | Range | N | Mean | Range | N |
| Age at slaughter (days) | 180 | - | 16 | 180 | - | 16 |
| Age at slaughter (days) | 270 | - | 16 | 270 | - | 16 |
| Weight at slaughter (kg) at 180 days | 14.33 | 12.9-15.7 | 16 | 12.43 | 11.1-13.8 | 16 |
| Weight at slaughter (kg) at 270 days | 23.03 | 21.7-4.4 | 16 | 18.02 | 16.6-19.4 | 16 |
| Dressing % (Hot) at 180 days | 46.29 | 44.8-47.8 | 16 | 47.18 | 45.7-48.7 | 16 |
| Dressing % (Hot) at 270 days | 50.76 | 49.3- 2.2 | 16 | 49.30 | 47.8-50.8 | 16 |
| Dressing % (Cold) at 180 days | 44.72 | 43.3-46.5 | 16 | 45.47 | 44.0-46.9 | 16 |
| Dressing % (Cold) at 270 days | 50.04 | 48.6- 51.5 | 16 | 48.16 | 46.7-49.6 | 16 |

4. Dairy performance
Salem Black goats are reared primarily for meat. Does are not milked.
5. Reproduction

| Trait | Mean | Range | N |
|---|--|-------|-----|
| Age at first mating in males (months) | 9.5 | 7-12 | 36 |
| Age at first mating in females (months) | 9.7 | 6-13 | 96 |
| Age at first kidding (months) | 14.8 | 11-18 | 82 |
| Kidding interval (months) | 7.1 | 6-9 | 62 |
| Litter size | 1.6 | 1-4 | 440 |
| Twinning (%) (N=440) | Twins- 40.0%, Triplets- 8.2% and Quadruplets- 0.4% | | |

6. Fibre characteristics
Salem Black are hairy meat type goats and hence no information on fibre characteristics.
7. Any other information specific to the breed
The dendrogram constructed based on Nei's (1972) and Nei's (1978) revealed that the Kanni Adu and Kodi Adu goats formed a cluster, whereas, Salem Black goat is distinctly different from the two populations.

SUMI-NE GOAT

I. GENERAL DESCRIPTION

- | | |
|---|---|
| 1. Name of the breed | Sumi-Ne Goat |
| 2. Synonyms | Apu-Asu-Ne, Nagaland Long Haired |
| 3. Background for such a name/ origin | Sumi is a tribe in Nagaland and 'Ne' means goat in Sumi dialect. Hence goats reared by Sumi people are known as 'Sumi-Ne' |
| 4. Since when the breed is known | Time immemorial |
| 5. Strains (or within breed types) | Nil |
| 6. Most closely related breeds (in appearance) | None |
| 7. Classification | |
| a. Size (Small/Medium/Large) | Medium |
| b. Utility (Mutton/Milk/Dual/Fibre/Hair or any other) | Primarily for its long fibre. Only the culled animals are slaughtered for meat purpose |
| 8. a. Native tract of distribution in terms of longitude and latitude | Between 94° 19' E and 94° 72' E Between 25° 78' N and 26° 21' N |
| b. Approximate area of distribution (sq. km) | 1,255 |
| c. Place(s) | State: Nagaland District: Zunheboto (entire district) |
| 9. Estimated population | |
| a. Year of estimation | 2011 |
| b. Population | 4,500 |
| c. Source/Reference | Directorate of A.H & Vet., Govt. of Nagaland |
| 10. a. Communities responsible for | Sumi tribes of |



Sumi-Ne-male



Sumi-Ne-female

- developing the breed
 Nagaland Tribes
 b. Description of community (Farmers/Nomads/Isolated/Tribes)
 11. Herd: Average size 12 (Range 4-18)
 Composition Doe: 35%, Bucks: 10%, Kids: 55%
 12. Any other information Nil

II. PHYSICAL CHARACTERS

1. Colour
 Distinct colour markings, if any White with characteristic black markings on head, neck and legs
2. Head profile (Straight/Convex/Slightly convex) Slightly convex
3. Ears (Erect/Pendulous/Horizontal) Horizontal
4. Wattles (Present/Absent) Generally absent
5. Horns
 a. Number Two
 b. Shape Pointed
 c. Orientation Slightly curved backward
- d. Size (Small<15/Medium 15-25/Large<25cm) Small
6. Coat type (Hair/Cashmere/Pashmina/Mohair) Hair
7. Beard (Present/Absent) Present
8. Any other information Presence of long hair in adult animals is the most important phenotypic character. The length of the fibre, however, is more in case of male as compared to that of females

III. PERFORMANCE

1. Body weight (kg)

| Weight at | Male | | | Female | | |
|------------------|-------|-----------|----|--------|-----------|----|
| | Mean | Range | N | Mean | Range | N |
| Birth | 1.30 | 1.1-1.4 | 60 | 1.22 | 1.1-1.6 | 58 |
| Weaning/3 months | 4.10 | 3.2-4.4 | 65 | 4.09 | 3.1-4.3 | 54 |
| 6 months | 7.55 | 6.3-8.9 | 62 | 6.90 | 6.2-8.4 | 52 |
| 1 year | 14.23 | 12.2-15.9 | 45 | 12.45 | 11.1-14.6 | 55 |
| 6 teeth (adult) | 16.18 | 14.5-17.9 | 30 | 13.50 | 11.7-16.4 | 49 |

2. Body measurements (cm)

| Parameter | Male | | | Female | | |
|-------------------|-------|-----------|----|--------|-----------|----|
| | Mean | Range | N | Mean | Range | N |
| Chest girth | 52.40 | 46.4-54.4 | 45 | 47.50 | 45.3-49.7 | 55 |
| Body length | 50.50 | 47.2-53.3 | 45 | 45.53 | 42.5-48.1 | 55 |
| Height at withers | 46.45 | 44.7-47.8 | 45 | 45.80 | 43.2-47.1 | 55 |

3. Carcass characters

| Trait | Male | | | Female | | |
|--------------------------|-------|-----------|---|--------|-----------|---|
| | Mean | Range | N | Mean | Range | N |
| Age at slaughter (days) | 1645 | 1460-1825 | 4 | 1825 | 1460-2190 | 6 |
| Weight at slaughter (kg) | 16.25 | 14.7-17.5 | 4 | 14.15 | 12.0-15.7 | 6 |
| Dressing % (Hot) | 48.87 | 47.4-49.2 | 4 | 46.13 | 45.5-46.3 | 6 |
| Dressing % Cold) | 46.96 | 45.5-47.4 | 4 | 44.10 | 43.5-45.6 | 6 |

4. Dairy performance: Not known

5. Reproduction

| Trait | Average | Range | N |
|--|---------|---------|----|
| a. Age at first mating in males (days) | 360.12 | 345-390 | 50 |
| b. Age at first mating in females (days) | 253.74 | 240-300 | 78 |
| c. Age at first Oestrus (days) | 235.50 | 218-245 | 78 |
| d. Oestrus cycle duration (days) | 21.40 | 18-22 | 40 |
| e. Age at first kidding (days) | 420.75 | 390-460 | 74 |
| f. Kidding interval (days) | 231.85 | 215-250 | 65 |
| g. Service period (days) | 85.67 | 70-110 | 65 |
| h. Litter size | 1.12 | - | 74 |
| i. Lifetime number of kidding | 7.00 | - | 30 |

6. Fibre characteristics

| | |
|--|-------|
| a. Age at shearing/combing/collection/clipping (months) | 12 |
| b. Type of fibre: Mohair (true/heterotypes/Kemps)/(Cashmere/Pashmina/Hair) | Hair |
| c. Fleece colour | White |

| Trait | Average | Range | N |
|-------------------------|---------|---------|----|
| Fibre yield (g) | 197.33 | 187-207 | 42 |
| Fibre length (cm) | 15.55 | 10-18 | 42 |
| Fibre diameter (micron) | 225.56 | 210-250 | 42 |

8. Any other information specific to the breed Sumi-Ne goat constitute a unique germplasm with respect to its uniform physical characteristics as well as conformational attributes. So far this breed has been traditionally reared by the tribal people under extensive system of management without providing any external inputs.

KACHCHHI-SINDHI HORSE**I. GENERAL DESCRIPTION**

1. Name of the breed **Kachchhi-Sindhi**
2. Synonyms Kachchhi, Sindhi
3. Background for such a name/origin This horse breed has its origin in Pachchham (Khavda) and Banni area of Kachchh district of Gujarat (India) and is locally known as “Kachchhi Horse”. The breeding tract is very close to the Sindh area on the border with Pakistan. Before partition, both Kachchh and Sindh were considered the place of origin/ breeding tract of these horses. Hence, these are named as Kachchhi-Sindhi. In Rajasthan, these are known as Sindhi horses.
4. Since when the breed is known Since 700 years
5. Strains (or within breed types) None
6. Most closely related breeds (in appearance) Marwari
7. a. Native tract of distribution in terms of longitude and latitude Between 68° 7' and 72° 52' E of longitude and Between 22° 44' and 28° 23' N of latitude
- b. Approximate area of distribution (sq. km) 45,652
- c. Place(s) State: Gujarat, Rajasthan. District(s): Kachchh, Barmer and Jaisalmer. Also found in Surat and Navsari area where these are used in sport and riding.
8. Estimated population
 - a. Year of estimation 2012 and 2014
 - b. Population 4,359 (~ 3,136 in Kachchh, Gujarat and 1,226 in Barmer & Jaisalmer, Rajasthan)
 - c. Source / Reference Kachchh - Census made by Ram Rahim Kachchhi Sindhi Ashwapalak Sahkari Mandali Ltd. Anjar and Sahjeevan in 2014. Rajasthan - Based on Livestock Census 2012.



Kachchhi-Sindhi-male



Kachchhi-Sindhi-female

9. a. Communities responsible for developing the breed
 - Muslims: Sama in Khavda (Pachchham), Sindhi pastoralist of Banni & Other, Jat & Kumbhar
 - Hindu: Rajput (Vaghela, Jadeja, Sodha, Chauhan), Gadhvi, Ahir, Koli, Patel, Bhramin, Sikh, Thakker, Rabari, Meghval and others
- b. Description of community (Farmers/Nomads/Isolated/ Tribals)
 - Muslim Sama of Khavda: They are farmer cum livestock keepers living nomadic / semi-nomadic life and maintains Kachchhi horse under semi-intensive/ intensive housing systems
 - Muslim Sindhi of Banni & Other area: They are traditionally livestock keepers living nomadic / semi-nomadic life and maintain Kachchhi-Sindhi horse under extensive system of management.
 - Other Hindu, Muslims & Sikh: Most of them are basically farmers. They maintain these horses in stall fed/ intensive housing system at their farms or homes.
10. Herd Book / Register established No
11. Stud: Average size 4.36 (range 1-18)
Composition (%) Stallion: 8.7, Mares: 53.2, Foals: 38.1
12. Utility of the breed Transportation, Riding, Sports, Safaris, Bagghi, Trading
13. Any other information:

Breeders consider Kachchhi-Sindhi horse breed as unique. Not only do they have distinct physical features but also quality of “rewal chal”, a special type of race. According to horse breeders, ‘rider can carry buttermilk (liquid) on the back of Kachchhi-Sindhi horse in open vessel to a long distance without any drop spilling out’.

Limb conformation required and especially of pastern bone & joints helps in facilitation of quality “rewal chal” without disturbing the limb dynamics. Even the geography of native tract of this horse is most suitable for “rewal chal”, the landscape is flat, soil is smooth in Banni and nearby greater and little Rann of Kutch while, sandy soil found in main land of Kachchh and Rajasthan. Breeders maintain breed purity by following selective breeding and not crossing with other breeds.

Open mating is practiced. Owners usually keep female horse and avoid keeping male/stallion. The reason for keeping female horse is that it serves many purpose like easy to manage as mares are very docile, good for riding and the foal produced are sold for income while stallions are sturdy and excellent in riding but compared to mares, they are quite aggressive in nature. There is also no other income from stallion as most of the Kachchhi-Sindhi horse owners do not charge for breeding.

Stallions are very carefully selected, keeping knowledge of their pedigree, physical characters like convex forehead & nasal bone giving face a “Roman Nose” appearance, long ears turning at

tips but not touching each other, small pastern bone & wider hoof circumference with well-built body and good scrotal circumference.

In Kachchh, specifically in Banni and Pachchham (Khavda) area, Kachchhi-Sindhi horses are maintained in extensive grazing system. A specific controlled breeding system is practiced by breeders to avoid unwanted breeding and to secure the good filly for riding.

II. PHYSICAL CHARACTERISTICS

| | Female | Male |
|-----------------------------|--------|--------|
| 1. Colour | | |
| a. Coat colour | | |
| i. Bay | 62.63% | 54.17% |
| ii. Black | 3.03% | 8.33% |
| iii. Buckskin | 2.53% | 0.00% |
| iv. Chestnut | 13.13% | 8.33% |
| v. Dun | 6.57% | 0.00% |
| vi. Grey | 4.55% | 20.83% |
| vii. Roan | 3.03% | 4.17% |
| viii. Pinto/Paint | 4.55% | 4.17% |
| b. Skin colour | | |
| i. Grayish Black | 93.43% | 91.67% |
| ii. Black | 2.02% | 8.33% |
| iii. Pinkish White | 3.54% | - |
| iv. Pink & Grey | 1.01% | - |
| c. Muzzle colour | | |
| i. Grayish Black | 57.07% | 45.83% |
| ii. Pink & Grey | 18.69% | 25.00% |
| iii. Pinkish White | 13.13% | 20.83% |
| iv. Black | 11.11% | 8.33% |
| d. Eyelid colour | | |
| i. Black | 69.70% | 66.67% |
| ii. Brown | 16.67% | 12.50% |
| iii. White | 6.06% | 16.67% |
| iv. Light Brown | 5.56% | 4.17% |
| v. Reddish Black | 1.01% | - |
| vi. Reddish Brown | 1.01% | - |
| e. Hoofs colour | | |
| i. Black | 44.44% | 45.83% |
| ii. Black & White | 41.41% | 33.33% |
| iii. White | 14.14% | 20.83% |
| f. Tail switch colour | | |
| i. Black | 77.27% | 66.67% |
| ii. Brown | 9.09% | 4.17% |
| iii. Light brown | 5.56% | 4.17% |
| iv. White | 2.02% | 16.67% |
| v. White & Brown | 3.03% | 4.17% |
| vi. Yellowish White | 3.03% | 4.17% |
| g. Patterns | | |
| i. Darker Extremities | 61.11% | 50.00% |
| ii. Lighter Ventral surface | 1.01% | - |
| iii. Patches | 1.01% | - |
| iv. Skewbald | 4.04% | 4.17% |
| v. No Pattern | 32.83% | 45.83% |
| 2. White markings | | |
| a. Face marking | | |
| i. Star | 78.33% | 75% |
| ii. Stripe | 25.62% | 12.50% |
| iii. Blaze | 3.94% | 4.17% |
| iv. Bald face | 3.45% | 4.17% |
| b. Muzzle marking- Snip | 48.28% | 45.83% |

| | | |
|---|--------|--------|
| c. Lip markings | 9.85% | - |
| d. Leg markings | | |
| i. Partial Pastern | 4.43% | 4.17% |
| ii. Pastern | 16.26% | 12.50% |
| iii. Fetlock | 24.63% | 16.67% |
| iv. Stock | 7.88% | 20.83% |
| v. Stocking | 12.81% | 4.17% |
| vi. Coronut | 2.46% | 4.17% |
| vii. Ermine Mark | 0.99% | 4.17% |
| e. Dun markings | | |
| i. Dorsal stripe | 7.39% | - |
| ii. Zebra markings | 4.43% | - |
| 3. Head | | |
| a. Forehead (Convex/Concave/Flat) | | |
| i. Straight/Flat | 64.14% | 58.33% |
| ii. Convex | 35.35% | 41.67% |
| iii. Concave | 0.51% | - |
| b. Nasal bone | | |
| i. Convex | 79.80% | 91.67% |
| ii. Straight | 19.70% | 8.33% |
| iii. Concave | 0.51% | - |
| c. Poll | | |
| i. Non Prominent | 14.14% | 8.33% |
| ii. Prominent | 85.86% | 91.67% |
| d. Poll | | |
| i. Comparatively wider | 85.86% | 91.67% |
| ii. Comparatively narrow | 14.14% | 8.33% |
| e. Ears: Curved at tips but not touching each other | 100% | 100% |
| 4. Eyes | | |
| i. Black | 50.26% | 50.00% |
| ii. Brown | 48.21% | 50.00% |
| iii. Grey | 1.54% | - |
| 5. Back (Straight/Concave/Moderate) | | |
| i. Straight | 96.94% | 100% |
| ii. Concave | 3.06% | - |
| 6. Tail setting | | |
| i. Beyond hock | 89.90% | 100% |
| ii. Up to hock | 9.09% | - |
| iii. Above hock | 1.01% | - |
| 7. Basic temperament | | |
| i. Docile | 96.97% | 87.50% |
| ii. Moderate | 2.02% | 12.50% |
| iii. Nervous | 1.01% | - |
| 8. Body size | | |
| i. Large | 42.35% | 45.83% |
| ii. Medium | 45.92% | 45.83% |
| iii. Massive | 8.67% | 8.33% |
| iv. Small | 3.06% | - |

III. PERFORMANCE

1. Estimated body weights (kg)

| Weight at | Male | | | Female | | |
|-------------------------|---------|---------|----|---------|---------|-----|
| | Average | Range | N | Average | Range | N |
| 6 months | 63.95 | 35-79 | 9 | 98.68 | 41-126 | 5 |
| 6 - 12 months | 161.83 | 130-192 | 11 | 165.06 | 122-235 | 18 |
| 1 to 3 year | 244.52 | 165-339 | 30 | 240.66 | 126-370 | 86 |
| Adult weight (>3 years) | 276.92 | 209-354 | 27 | 301.91 | 190-405 | 202 |

2. Body measurements (cm)

| Parameter | Male (Above 3 year) | | | Female (Above 3 year) | | |
|-------------------------------|------------------------|---------|-----|--------------------------|---------|----|
| | Average | Range | N | Average | Range | N |
| Face length | 52.12 | 45-57 | 202 | 52.48 | 49-57 | 27 |
| Face width | 18.02 | 13-20 | 202 | 18.07 | 15-20 | 27 |
| Ear length | 20.13 | 15-23 | 201 | 19.74 | 17-22 | 27 |
| Ear width | 8.90 | 8-12 | 202 | 8.92 | 8-9 | 26 |
| Neck length | 86.73 | 57-101 | 198 | 86.77 | 78-100 | 26 |
| Neck circumference (TL) | 68.26 | 50-86 | 201 | 71.52 | 60-80 | 27 |
| Neck circumference (MP) | 78.88 | 61-96 | 202 | 81.85 | 66-91 | 27 |
| Chest width | 29.79 | 26-33 | 203 | 29.70 | 27-34 | 27 |
| Height at wither | 144.66 | 131-159 | 200 | 145.52 | 137-158 | 27 |
| Body length | 134.66 | 120-153 | 202 | 133.15 | 124-145 | 27 |
| Heart girth | 163.21 | 135-186 | 203 | 157.22 | 140-173 | 27 |
| Paunch girth | 179.55 | 137-222 | 198 | 166.48 | 153-195 | 27 |
| Distance from wither to croup | 76.35 | 66-90 | 203 | 73.07 | 65-80 | 27 |
| Distance from croup to dock | 32.37 | 25-40 | 202 | 32.37 | 30-38 | 27 |
| Tail length | 40.86 | 30-54 | 199 | 39.63 | 33-48 | 27 |
| Tail length up to switch | 104.00 | 60-144 | 197 | 107.78 | 83-133 | 27 |
| Height at croup | 145.04 | 132-159 | 199 | 145.81 | 138-158 | 27 |
| Fore limb | | | | | | |
| Fore arm length | 38.94 | 31-45 | 203 | 39.96 | 33-45 | 27 |
| Fore arm circumference | 29.99 | 24-35 | 202 | 30.30 | 28-33 | 27 |
| Height at knee | 45.39 | 37-52 | 202 | 45.42 | 37-50 | 26 |
| Canon length | 27.98 | 22-32 | 203 | 28.78 | 27-32 | 27 |
| Canon circumference | 18.58 | 16-22 | 203 | 18.85 | 17-21 | 27 |
| Pastern length | 12.13 | 9-15 | 203 | 12.39 | 11-14 | 27 |
| Pastern circumference | 18.70 | 15-22 | 203 | 18.85 | 17-21 | 27 |
| Hoof length | 9.38 | 8-13 | 203 | 9.33 | 10-15 | 27 |
| Hoof circumference | 33.73 | 29-37 | 202 | 33.78 | 30-38 | 27 |
| Hind limb | | | | | | |
| Gaskin length | 49.98 | 40-60 | 199 | 51.56 | 43-58 | 27 |
| Gaskin circumference | 39.20 | 32-50 | 196 | 39.52 | 32-48 | 27 |
| Height at hock | 54.21 | 45-64 | 198 | 54.69 | 48-60 | 26 |
| Cannon length | 33.62 | 26-39 | 199 | 34.44 | 30-38 | 27 |
| Cannon circumference | 19.84 | 17-23 | 197 | 20.22 | 18-24 | 27 |
| Pastern length | 12.39 | 10-15 | 198 | 12.22 | 10-14 | 27 |
| Pastern circumference | 19.81 | 17-22 | 198 | 20.22 | 18-24 | 27 |
| Hoof length | 9.24 | 8-12 | 199 | 9.22 | 9-10 | 27 |
| Hoof circumference | 33.52 | 28-37 | 197 | 34.07 | 30-38 | 27 |

3. Reproduction

| Trait | Average | Range | N |
|---------------------------------------|---------|--------|----|
| Age at puberty in male (months) | 20.94 | 12-36 | 50 |
| Age at first service in male (months) | 42.72 | 24-72 | 50 |
| Age at first oestrus (months) | 15.52 | 9-30 | 50 |
| Oestrus cycle duration (days) | 21.26 | 15-30 | 50 |
| Oestrus duration (hours) | 157.44 | 72-216 | 50 |
| Age at first covering (months) | 31.40 | 24-48 | 50 |
| Age at first conception (months) | 31.40 | 24-48 | 50 |
| No. of services / conception | 1.06 | 1-2 | 50 |
| Age at first foaling (months) | 42.80 | 35-59 | 50 |
| Service period (days) | 54.60 | 7-720 | 50 |

| | | | |
|---------------------------|-------|-------|----|
| Foaling interval (months) | 13.96 | 11-36 | 50 |
| Gestation period (months) | 11.50 | 10-13 | 50 |
| Lifetime no. of foaling | 10.28 | 3-28 | 50 |

4. Type of work

- Transportation: Kachchhi-Sindhi horses are generally used for transportation of goods or other materials like fodder, raw construction materials, etc. This is the only breed used in carting and carriage-transportation. No other breed in Gujarat or Rajasthan has been used for this purpose.
 - Riding: Majority of the Kachchhi-Sindhi horse owner maintain and keep these horses for riding purpose, as these are excellent for long distance riding because of special type of Horse gait called "Rewal Chal".
 - Games and sports: Used for racing games, especially for "Rewal Chal race" and Gallop race also.
 - Other activities (Horse safaris): Used for entertainment purpose & for horse safaris at famous tourist place like, Mandvi Beach in Mandvi taluka of Kachchh district & White Rann in Dhordo (Banni) in Bhuj taluka of Kachchh district. Kachchhi-Sindhi horses are also used in horse Bagghi during marriage ceremony. Many breeders maintain these horses for selling & trading purpose also.
5. Any other information specific to the breed
- Draught tolerance: Excellent
 - Heat tolerance: Excellent
 - Work capacity: Hard (56%), Medium (44%)

ZOVAWK PIG

I. GENERAL DESCRIPTION

- Name of the breed **Zovawk**
- Synonyms Mizo local
- Background for such a name/origin Literally, 'Zo' means Mizo and 'vawk' means pig
- Since when the breed is known Since time immemorial
- Strains (or within breed types) None
- Most closely related breeds/populations (in appearance) Bru local pig and Burmese local pig
- Classification
 - Short eared Erect and short eared
 - Snout-length (long or short) Short and cylindrical
 - Belly type (pot or flat) Pot belly
- Native tract of distribution 93°22' E and 24°29' in terms of longitude and latitude N
 - Appropriate area of distribution 21,081 (sq km)



Zovawk-male



Zovawk-female

| | |
|--|--|
| c. Places | State: Mizoram District(s): Mamit, Kolasib, Aizawl, Lunglei, Lawngtlai, Saiha and Champhai |
| 9. Estimated population | |
| a. Year of estimation | 2012 |
| b. Population | 39,234 |
| c. Source/References | Livestock Census (2012), Department of Animal Husbandry & Veterinary, Mizoram |
| 10. a. Communities responsible for developing the breed | Mizo |
| b. Description of community (Farmers/Nomads/Isolated/Tribals) | Farmers/Tribals |
| 11. Flock: Average size | 7 (range 1-13) |
| Composition | Sows: 26.1%, Boars: 24.7%, Piglets: 49.2% |
| 12. Utility of the breed (Pork/Hair/Manure/Other(specify)) | Pork and Manure |

II. PHYSICAL CHARACTERISTICS

| | |
|---|--|
| 1. Colour | Black |
| Distinctive colour markings | White spot on the forehead (star), white patches on belly (sometimes) and white boot |
| 2. Snout profile (Straight/Convex/Slightly convex/Concave) | Concave |
| 3. Ears (Erect/Pendulous/Horizontal) | Erect |
| 4. Coat | |
| a. Bristle (Long/Medium/Short) | Long on midline |
| b. Fineness (Bristle diameter) | Coarse |
| 5. Hoof placement (Partial/Full) | Partial |
| 6. Top line (Straight/Concave) | Concave |
| 7. a. Number of teats | 4-6 pairs |
| b. Teat position | Mid Ventral region |

III. PERFORMANCE

| Weight at | Male | | | Female | | |
|-----------------|---------|-----------|-----|---------|-----------|-----|
| | Average | Range | N | Average | Range | N |
| Birth | 0.540 | 0.47-0.61 | 155 | 0.575 | 0.45-0.70 | 174 |
| Weaning | 3.12 | 2-4 | 134 | 3.65 | 2-5 | 152 |
| 3 months | 8.65 | 7-10 | 122 | 9.28 | 6-12 | 140 |
| 6 months | 17.40 | 15-20 | 115 | 18.92 | 15-23 | 135 |
| 1 year | 49 | 32-66 | 32 | 52.42 | 35-69 | 30 |
| Slaughter | 41 | 30-52 | 25 | 47.45 | 33-61 | 22 |
| First furrowing | | | | 40.45 | 33-47 | 120 |
| Adult weight | 54 | 45-63 | 88 | 58.5 | 46-71 | 120 |

2. Body measurements (cm)

| Parameter | Male | | | Female | | |
|-------------|---------|-------|-----|---------|-------|-----|
| | Average | Range | N | Average | Range | N |
| Chest girth | 79.46 | 77-81 | 110 | 81.91 | 78-86 | 124 |
| Body length | 84.78 | 82-86 | 110 | 85.07 | 83-87 | 124 |

| | | | | | | |
|-------------------|-------|-------|-----|-------|-------|-----|
| Height at withers | 49.15 | 45-54 | 110 | 49.04 | 47-50 | 124 |
| Neck girth | 65.98 | 61-70 | 110 | 67.99 | 66-70 | 124 |

3. Carcass characters

| Trait | Male (N=25) | | Female | |
|-------------------------|-------------|-----------|---------|-----------|
| | Average | Range | Average | Range |
| Age at slaughter (days) | 300 | - | 300 | - |
| Carcass weight (kg) | 28.29 | 23-33 | 34.2 | 25-43 |
| Length (cm) | 51.67 | 62-81 | 50.5 | |
| Dressing % | 69 | 64-74 | 72 | 66-78 |
| Meat: bone ratio | | | | |
| Fat thickness (inch) | 0.83 | 0.64-1.02 | 1.4 | 1-2.2 |
| Feed conversion ratio | 5.42 | 5.19-5.64 | 4.85 | 4.15-5.54 |

4. Reproduction

| Trait | Average | Range | N |
|------------------------------------|---------|---------|----|
| a. Males | | | |
| i. Age at first mating (days) | 240 | 220-300 | 21 |
| b. Females | | | |
| i. Age at first oestrus (days) | 120 | 110-150 | 85 |
| ii. Oestrous cycle duration (days) | 21 | 17-25 | 85 |
| iii. Oestrus duration (hrs) | 62 | 48-72 | 85 |
| iv. Age at first mating (days) | 199 | 180-235 | 67 |
| v. Age at first furrowing (days) | 314.9 | 294-350 | 67 |
| vi. Furrowing interval (days) | 170 | 164-205 | 52 |
| vii. Litter size at furrowing | 7.03 | 2-12 | 52 |
| viii. Litter weight (kg) | 3.91 | 3.1-4.7 | 52 |
| ix. Litter size at weaning | 5.2 | 3-8 | 52 |
| x. Lifetime number of furrowing | 10 | 5-12 | 22 |
| xi. Productive life span (months) | 30 | 24-48 | 72 |

5. Bristle production

| | |
|--------------------------------|-------|
| a. Number of cuttings per year | NA |
| b. Bristle colour | Black |

| Bristle parameter at 1 year of age | Male | | | Female | | |
|---------------------------------------|---------|-------------|----|---------|-------------|----|
| | Average | Range | N | Average | Range | N |
| Weight (g) | 92 | 55-115 | 10 | 84.7 | 55-110 | 10 |
| Length (cm) | 9.3 | 7.5-10.9 | 10 | 10.74 | 5.9-15 | 10 |
| Diameter (μ) | 38.71 | 25.62-50.83 | 10 | 38.55 | 29.59-46.56 | 10 |

6. Any other information specific to the breed

Zovawk are social animals, they never stay alone under normal conditions. In the olden days, they search food together in groups and sleep together, they usually scavenge for food in and around houses/dwellings and even in the forest areas and sleep under houses in head to tail system. They communicate with one another by emitting a specific grunting sound indicating food, warning to danger, calling the young ones, etc. In danger, the leader emits a loud grunting sound and the group huddles together forming a circle pointing their snout outwards with the weaker and young pigs in the centre.

ARUNACHALI YAK

I. GENERAL DESCRIPTION

- Name of the breed Arunachali
- Background for such a name/origin Name "Arunachali" is derived from the name of its native



Arunachali-male



Arunachali-female

| | | | |
|---|--|--|---------------------------------------|
| | | tract i.e. Arunachal Pradesh | |
| 3. Breed name synonyms | | No | |
| 4. Strains (or within breed types) | | No | |
| 5. Most closely related breeds/populations (in appearance) | | Ladakhi yak, Sikkimmi Yak, Himachali Yak | |
| 6. Since when the breed is known | | Domestic yak (<i>Poephagus gruninens</i>) of Arunachal Pradesh has probably been originated from its wild counterpart (<i>Poephagus mutus</i>) long back over the centuries. | |
| 7. Use of breed (milk, meat, hair & fibre, draught, transportation, manure, others) | | Milk, meat, hair & fibre, transportation and manure | |
| 8. Estimated population | | | |
| a. Year of estimation | | 2012 | |
| b. Population | | 14,061 | |
| c. Source/Reference | | 19 th Livestock Census | |
| 9. a. Native tract of distribution in terms of longitude and latitude | | Between 90°15' and 92°40' E Between 26°54' and 28°01' N | |
| b. Altitude | | 3000-4000 above MSL | 11. Herd: Average size Composition |
| c. Approximate area of distribution (sq km) | | 5,000 | |
| d. Place(s) | | State: Arunachal Pradesh District(s): West Kameng and Tawang (Two community development blocks of West Kameng district and six administrative blocks of Tawang district) | 12. Any other information |
| 10. a. Communities responsible for developing the breed | | Monpa tribe | |
| b. Description of community | | Majority of population in West Kameng and Tawang districts of Arunachal is <i>Monpa</i> community. Yak has been closely involved with the culture, religion and social life of the | |

Monpa people who can trace their history of yak keeping back over the centuries. The *Monpa* people are following semi migratory system for rearing yak since time immemorial. It is treated as an asset of the rural economy. Agriculture is mainstay of yak farmers and nearly 80% population largely depends on it. The houses of yak rearers which are basically the *Monpa* tribes, are constructed in traditional style from the locally available materials. The average family members per household is six and 50% of them are literate and 50% are involved in yak husbandry. In Arunachal Pradesh, land holding is community based and average agriculture land holding is 4500 acres and annual income of yak farmers is ₹ 55,000/annum.

52
Adult females 37%, Adult males 27%,
Young stock 21%,
Calves 15%

Yak rearers also called *Brokpa* migrate their herds during summer season, along the mountain ridges away from their homestead for grazing. One attendant stays all along at the pasture land for full time attending the herds as well as milking and preparing butter, *ghee* and *churpi* (fermented butter) for home consumption as well as commercial purpose. In winter season when heavy

snowfall occurs, the entire herd is brought back to nearby their homestead.

II. PHYSICAL CHARACTERS

1. Colour
 - a. Coat colour
Majority Black. Few animals have white forehead/white face/white strip from hump to tail
 - b. Skin colour
Black, few Brown and White
 - c. Muzzle
Mostly Black
 - d. Eyelids
Mostly Black
 - e. Tail switch
Majority Black; some time White and Brown
 - f. Hooves
Mostly Black
2. Horns
 - a. Colour
Black
 - b. Size
Male: Large (31.5 cm, range 28-35 cm)
Female: Medium (21 cm, range 18-24 cm)
 - c. Shape
Mostly curved, sometimes straight
 - d. Orientation
Mostly curved forward followed by backward with pointing tips. Some animals have upward or inward or lateral or downward pointing horns.
3. Ears
 - a. Length (cm)
Male: 13.5±2.7;
Female: 11.5±1.7
 - b. Orientation
Horizontal
4. Head
 - a. Forehead
Male: 24.5±3.1 cm,
Female: 18.0±2.8 cm
 - b. General description
Convex with prominent poll
5. Body
 - a. Hump
Medium in males and small in females
 - b. Dewlap
Present in almost half of males, mostly absent in females
 - c. Naval flap
Small
 - d. Penis sheath flap
Medium to large
 - e. Basic temperament
Docile
6. Udder
 - a. Shape
Mostly trough
 - b. Size
Medium
 - c. Teat shape
Cylindrical

III. PERFORMANCE

1. Body weight (kg)

| Weight at | Male | | | Female | | | |
|---------------|---------|---------|---------|---------|---------|---------|-----|
| | Average | Range | N | Average | Range | N | |
| Birth | 13.8 | 11-19 | 140 | 13.23 | 10-19 | 110 | |
| Pre-weaning | 54.62 | 41-66 | 190 | 48.5 | 37-56 | 210 | |
| 12 months | 110.25 | 92-125 | 140 | 98 | 87-116 | 120 | |
| 24 months | 208.65 | 170-245 | 350 | 169.5 | 144-211 | 180 | |
| First mating | | | | 228 | 188-247 | 180 | |
| First calving | | | | 234.24 | 192-249 | 120 | |
| Adult wt | Summer | 416 | 353-448 | 150 | 261.5 | 210-310 | 130 |
| | Winter | 315 | 261-337 | 150 | 206 | 178-233 | 130 |

2. Body measurements (cm)

| Parameter | Male | | | Female | | |
|-------------------|---------|---------|-----|---------|---------|-----|
| | Average | Range | N | Average | Range | N |
| Chest-girth | 169.5 | 133-184 | 190 | 143 | 117-160 | 200 |
| Body length | 159.5 | 138-179 | 190 | 135 | - | 200 |
| Height at withers | 111 | 98-124 | 190 | 94 | 69-112 | 200 |

3. Dairy performance

| Parameter | Average | Range | N |
|------------------------------|-------------------|----------|-----|
| Daily milk yield (kg) | 1.01 | 0.4-1.6 | 110 |
| Peak milk yield (kg) | 1.29 | 1.0-1.7 | 100 |
| Days to reach peak yield | Two & half months | | 100 |
| Lactation length (month) | 6 | 4-8 | 110 |
| Lactation milk yield (kg) | 185 | 120-224 | 110 |
| Fat % | 7.45 | 4.5-9.8 | 110 |
| SNF % | 11.5 | 9.6-15.1 | 110 |
| Productive life span (month) | 142 | 123-163 | 210 |
| Dry period (days) | 355 | 310-387 | 210 |

4. Hair/fibre characteristics

- a) Hair production (Coarse)
 - i. Age at clipping
12-18 months
 - ii. Weight of clipping (kg)
Male: 1.65 (range 0.95-1.85)
Female: 1.15 (range 0.65-1.5)
 - iii. Hair length
Medium
 - iv. Hair diameter
50-100 microns
 - v. Hair texture
Mostly straight
- b) Down fibre (undercoat)
 - i. Age at clipping
12-18 months
 - ii. Weight of clipping (kg)
Male: 0.5 (range 0.35-0.70)
Female: 0.45 (range 0.35-0.60)
 - iii. Hair length
Short (35-50 mm)
 - iv. Hair diameter
16-20 microns

5. Reproduction

- a. Males
 - i. Age at first ejaculation (days)
720 (range 690-750)
 - ii. Age at first mating (days)
1020 (range 960-1080)
- b. Females
 - i. Age at first oestrus (months)
34-36
 - ii. Estrous cycle duration (days)
21
 - iii. Estrus duration (hrs)
12
 - iv. Age at first mating (months)
34-36

- v. Age at first calving (months) 43-45
- vi. Interval from calving to 1st conception (days) 90-180
- vii. Conception rate (%) 30-50
- viii. No. of services per conception 2-3
- ix. Service period (days) 90-100
- x. Calving interval and range (days) 510 (range 480-530)
- xi. Gestation length and range (days) 263 (range 255-270)
- xii. Twinning percentage 0.25-0.5
- xiii. Dystocia percentage 7.5
- xiv. Placental retention (%) 12
- xv. Abortions (%) 8.5
- xvi. Still births (%) 5
- xvii. Post gestational mortality (%) 4

- 7. Type of work
 - a. Purpose (Transportation/Ploughing/Threshing/Power, etc.) Transportation
 - b. Capacity for work (Hard/Medium/Light) Medium
 - c. Average duration of work per day (hrs) 7-8
- 8. Drought tolerance (Allocate grades 1-5, 1= high) High
- 9. Heat tolerance (Allocate grades 1-5, 1= high) Moderate (Grade 3)
- 10. Cold tolerance (Allocate grades 1-5, 1= high) High
- 11. Diseases and parasites The most prevalent diseases in Arunachali yak are Foot and Mouth disease (FMD), diarrhea, babesiosis and viral disease. Prevalence of ticks and lice are very common during migratory period. Especially helminth infections are very common in calves and cause heavy mortality. The occurrence of FMD is seasonal, with highest incidences recorded in February and March. Sometime, intake of toxic weeds also causes mortality.



Kashmir Anz-cinnamon male and white female

- 4. Since when the breed is known Ancient time (Lawrence, 1985)
- 5. Strains (or within breed types) Two
 - 1. White coloured geese (*Safed Anz*)
 - 2. Cinnamon coloured geese (*Katchur Anz*)
- 6. Most closely related breeds African and Chinese Geese breeds
- 7. Origin of breed (Indigenous/Exotic) Indigenous
- 8. Origin, if imported Not applicable
- 9. a. Native tract of distribution in terms of longitude and latitude Longitude 74° 54' E & Latitude 32° 44' N
- b. Approx. area of distribution 15,948 km²
- c. Place State: Jammu & Kashmir
District(s): Srinagar, Bandipora, Ganderbal, Baramulla, Budgam
- 10. Estimated population
 - a. Year of estimation 2013
 - b. Population More than 13,000 birds
 - c. Source/Reference Personal Survey
- 11. a. Communities responsible for developing the breed Kashmiris
- b. Description of community Geese farmers, Agricultural farmers, Fishermen, Labourers, Sand dealers, Government employees, Basket weavers, Vendors/ shopkeepers, Shikaramen, Gardeners, Carpenters, Businessmen, Butcher etc.
- 12. Flock: Average size 39.73±11.01 (range 2-400)
- Composition Ganders (males): 4%, Goose (females): 22%, Yearlings (Young): 74%
- 13. Utility of the bird (Eggs/Meat/ Game/Others) Meat (sold in market as well as consumed by the family), Eggs (mostly kept for

KASHMIR ANZ GEESE

I. GENERAL DESCRIPTION

- 1. Name of the breed Kashmir Anz
- 2. Local name *Anz*
- 3. Background of such name The proposed name '*Kashmir Anz*' is derived from two words '*Kashmir*' representing the breeding tract of the

14. Any other information

incubation), Pets (As a hobby), Feathers

These geese are mostly found in and around the water bodies (Lakes and Wetlands) across the valley but are more abundant in districts of Srinagar, Bandipora, Ganderbal, Budgam and Baramulla. In Srinagar district, geese are reared in the hamlets located around Dal, Nigeen and Anchar lake. In Ganderbal district, geese are being reared in the Shalbugh area, localities along the river Sind and around the parts of Anchar Lake falling in this district. Geese rearing areas of Bandipora are distributed around the Wular Lake, mainly in Hajin, Sonawari and Laharwalpora. Geese rearing areas in Baramulla district include Pattan, Mirgund, Hygam, Nigli, Sangrama and Boniyar and those of Budgam are areas around wetlands of Hokarsar and Narkara.

II. PHYSICAL CHARACTERS

1. Colour

- | | | |
|-------------------|-----------|--|
| a) Plumage colour | Goslings: | 1. Yellow (appears to grow into white adults) 2. Blackish yellow (appears to grow into cinnamon adults) |
| | Adults: | 1. All white plumage (23.53%) 2. Cinnamon coloured plumage (76.47%) |

Cinnamon colour variation

- *Body*: Cinnamon colour is present in different gradations varying from all cinnamon to all white through all intermediates.
- *Along the backside of neck*: Variations are present, in terms of the extent of cinnamon colour along the back side of

neck, with cinnamon colour spreading all along the neck to its complete absence through all intermediates. Various patterns are also observed in the distribution of this colour along the neck.

- *Abdomen*: Three variations are found in abdominal plumage colour viz. light cinnamon, light cinnamon with white crescent and all white colour. The white crescent was either present as a narrow ring or a broad patch.
- *Wings*: Similarly, cinnamon colour is present across the wings in different variations and gradations varying from full cinnamon to full white through all intermediates. Asymmetry is also seen in the spread of cinnamon colour across the wings.
- *Head*: Variations in the colour of head is also seen ranging from all cinnamon to all white through all intermediates. However, in the variants with all cinnamon head, light and dark shades were present, with darker crown (upper part of head) and lighter lore (face).

| | |
|---|---|
| b) Sexual dimorphism on the basis of colour | Absent |
| c) Shank colour | Orange in adults, Yellow in goslings & juveniles |
| d) Eye colour | Grey (55.3%), Brown (44.7%) |
| e) Bill colour | Ranges from complete black to complete yellow through all intermediate grades |

2. External features

- | | |
|-----------|---|
| a) Knob | Present in 44.71% geese (42.11% males and 51.16% females) |
| b) Dewlap | Present in only 3.07% geese |
| c) Paunch | Present in only 13.59% geese |

III. MORPHOMETRICAL CHARACTERISTICS

1. External measurements

| Parameter | Male | Female | Overall (N=746) |
|---|---------------|---------------|-----------------|
| Bill length (cm) | 9.361±0.136 | 8.470±0.100 | 8.888±0.970 |
| Bill width (cm) | 2.725±0.036 | 2.593±0.029 | 2.656±0.024 |
| Knob diameter (cm) | 2.691±0.094 | 2.183±0.078 | 2.400±0.073 |
| Head width (cm) | 4.000±0.000 | 3.970±0.042 | 3.976±0.035 |
| Neck length (cm) | 31.540±0.524 | 29.767±0.486 | 30.599±0.368 |
| Neck girth (cm) | 10.500±0.156 | 9.807±0.091 | 10.135±0.099 |
| Chest girth (cm) | 41.921±0.782 | 39.931±0.676 | 40.865±0.522 |
| Breast angle (°) | 43.897±0.911 | 42.163±0.691 | 42.977±0.568 |
| Keel length (cm) | 15.776±0.370 | 15.130±0.201 | 15.433±0.206 |
| Length from tip of beak to tip of tail (cm) | 88.662±1.069 | 84.869±0.833 | 86.646±0.698 |
| Length across wings (cm) | 138.069±1.971 | 131.956±1.742 | 134.742±1.343 |
| Shank length (cm) | 11.865±2.006 | 11.249±1.925 | 11.538±1.381 |

2. Visceral measurements

| Parameter | Male | Female | Overall (N=30) |
|-----------------------------|--------------|--------------|----------------|
| Duodenum length (cm) | 32.875±2.17 | 34.778±0.602 | 34.283±0.925 |
| Jejunum length (cm) | 69.751±5.116 | 80.30±1.972 | 79.444±1.888 |
| Ileum length (cm) | 73.549±6.134 | 78.6±1.714 | 79.118±1.816 |
| Caecum length (cm) | 19.625±0.533 | 19.0±0.592 | 20.833±0.583 |
| Colon + Cloaca length (cm) | 12.8±0.846 | 12.3±0.559 | 15.761±3.625 |
| Oesophagus length (cm) | 32.5±1.443 | 32.875±0.789 | 32.8±0.728 |
| Proventriculus length (cm) | 4.25±0.144 | 4.944±0.294 | 4.818±0.255 |
| Proventriculus breadth (cm) | 3.25±0.144 | 3.556±0.13 | 3.5±0.117 |
| Trachea length (cm) | 24.0±0.0 | 25.0±1.022 | 24.909±0.929 |
| Gizzard weight (g) | 87.50±4.27 | 80.67±1.49 | 94.08±3.32 |
| Spleen weight (g) | 1.9±0.1 | 1.68±0.109 | 1.763±0.079 |
| Liver weight (g) | 56.33±0.91 | 53.89±0.78 | 55.18±1.49 |
| Heart weight (g) | 27.15±1.41 | 25.38±0.75 | 25.29±0.53 |
| Oviduct length (cm) | - | 38.5±8.50 | 38.5±8.50 |
| Ovary weight (g) | - | 12.51±2.225 | 12.51±2.225 |

IV. PERFORMANCE

1. Egg production characteristics

- | | |
|--------------------------------------|---------------------|
| a) Age at first egg | 13.733±0.534 months |
| b) Annual egg production | 12.38±0.575 eggs |
| c) Clutch size | 9.445±0.298 eggs |
| d) Number of laying cycles in a year | 1-2 |
| e) Laying pattern | Alternate days |

2. Egg quality traits

| Parameter | Average (N=67) |
|-------------------------|-------------------------|
| Egg weight (g) | 136.648±2.095 (116-157) |
| Shape index (%) | 71.050±0.702 |
| Specific gravity (g/dl) | 1.092±0.004 |
| Albumin index | 0.091±0.003 |
| Albumin weight (g) | 60.061±1.555 |
| Albumin content (%) | 43.479±0.776 |
| Yolk index | 0.377±0.005 |
| Yolk weight (g) | 55.879±1.767 |
| Yolk content (%) | 40.268±0.813 |
| Yolk colour grade* | 4.182±0.370 |
| Haugh unit | 71.312±1.836 |
| Shell thickness (mm) | 0.526±0.313 |
| Membrane thickness (mm) | 0.111±0.016 |
| Shell weight (g) | 22.333±0.627 |
| Shell content (%) | 16.253±0.464 |
| Shell colour | White |
| Inclusion bodies | Absent |

*Grading scale of 2-14 (14 = darkest; 2 = lightest shade)

3. Reproduction characteristics

- | | |
|----------------------|-------------|
| a) Broodiness | Usual |
| b) Hatchability | 83.37±2.49% |
| c) Incubation period | 30-32 days |

4. Growth characteristics

| Age | Body weight (kg) |
|-------------------|------------------|
| 0 – 4 weeks | 0.09 |
| 3 months | 2.87 |
| 6 months | 3.19 |
| 9 months | 3.34 |
| 12 months | 3.63 |
| 24 months | 3.74 |
| 36 months or more | 3.98 |
| Adult Male | 3.816±0.103 |
| Female | 3.342±0.071 |
| Overall (N=746) | 3.564±0.067 |

5. Slaughter characteristics and yields

| Parameter | Males | Females | Overall (N=30) |
|-----------------------------------|----------------|----------------|----------------|
| Weight before feed withdrawal (g) | 3273.75 ±37.84 | 3152.31 ±60.17 | 3071.88 ±51.01 |
| Shrinkage (%) | 4.710±0.0 | 4.710±0.0 | 4.711±0.06 |
| Pre-slaughter weight (g) | 3119.50 ±36.06 | 3003.78 ±57.34 | 2927.08 ±48.50 |
| Bled-out weight (g) | 2976.50 ±38.32 | 2870.00 ±60.24 | 2792.83 ±48.01 |
| De-feathered weight (g) | 2728.50 ±44.14 | 2648.00 ±58.51 | 2577.42 ±43.95 |
| Dressed weight (g) | 2136.50 ±22.43 | 1974.89 ±44.22 | 1980.92 ±32.92 |
| Dressing percentage (%) | 68.505 ±0.79 | 65.828 ±0.353 | 67.711 ±0.48 |
| Evisceration loss (%) | 11.148 ±0.874 | 15.748 ±0.224 | 13.258 ±0.55 |
| Ready-to-cook weight (g) | 2308.48 ±25.59 | 2134.82 ±45.85 | 2155.38 ±33.13 |
| Ready-to-cook yield (%) | 74.023 ±0.94 | 71.155 ±0.341 | 73.72 ±0.58 |

6. Yield characteristics of giblets and other main by-products

| Parameter | Males | Females | Overall (N=30) |
|--------------------------|--------------|-------------|----------------|
| Gizzard weight (g) | 87.50±4.27 | 80.67±1.49 | 94.08±3.32 |
| Gizzard yield (%) | 2.808±0.151 | 2.714±0.038 | 3.252±0.148 |
| Heart weight (g) | 27.15±1.41 | 25.38±0.75 | 25.29±0.53 |
| Heart yield (%) | 0.873±0.036 | 0.84±0.03 | 0.868±0.020 |
| Liver weight (g) | 56.33±0.91 | 53.89±0.78 | 55.18±1.49 |
| Liver yield (%) | 1.805±0.021 | 1.772±0.036 | 1.895±0.059 |
| Total giblets weight (g) | 171.98±3.78 | 159.93±2.18 | 174.47±3.85 |
| Total giblets yield (%) | 5.518±0.145 | 5.326±0.065 | 6.011±0.185 |
| Abdominal fat weight (g) | 21.00±7.94 | 66.00±8.30 | 36.76±6.68 |
| Abdominal fat yield (%) | 0.668±0.249 | 2.19±0.223 | 1.224±0.216 |
| Blood weight (g) | 143.00±2.89 | 133.78±4.42 | 134.25±2.63 |
| Blood yield (%) | 4.59±0.138 | 4.451±0.194 | 4.608±0.104 |
| Feather weight (g) | 248.00±17.80 | 222.00±4.36 | 215.42±6.14 |
| Feather yield (%) | 7.958±0.593 | 7.396±0.141 | 7.348±0.15 |
| Head weight (g) | 150.00±2.94 | 121.44±4.12 | 125.29±3.21 |
| Head yield (%) | 4.808±0.040 | 4.009±0.121 | 4.285±0.088 |

| | | | |
|------------------|-------------|-------------|-------------|
| Shank weight (g) | 93.50±2.06 | 76.44±1.69 | 81.33±1.54 |
| Shank yield (%) | 2.998±0.055 | 2.569±0.071 | 2.791±0.058 |

7. Cutability characteristics

| Cut-up part | Parameter | Males | Females | Overall (N=30) |
|-------------|-------------|--------------|--------------|----------------|
| Breast | Weight (g) | 611.0±22.59 | 591.75±19.5 | 584.61±12.48 |
| | Yield (plw) | 19.615±0.91 | 19.978±0.448 | 20.035±0.274 |
| | Yield (pdw) | 28.601±1.065 | 30.365±0.57 | 29.567±0.355 |
| Drum-sticks | Weight (g) | 243.5±7.27 | 192.25±6.53 | 221.22±6.49 |
| | Yield (plw) | 7.811±0.266 | 6.589±0.213 | 7.60±0.208 |
| | Yield (pdw) | 11.41±0.443 | 10.021±0.323 | 11.201±0.275 |
| Thighs | Weight (g) | 196.0±9.87 | 202.5±7.65 | 186.52±4.92 |
| | Yield (plw) | 6.275±0.249 | 6.708±0.186 | 6.386±0.114 |
| | Yield (pdw) | 9.173±0.447 | 10.203±0.29 | 9.449±0.211 |
| Back | Weight (g) | 452.0±13.17 | 390.75±10.74 | 411.57±9.87 |
| | Yield (plw) | 14.481±0.256 | 13.02±0.283 | 14.119±0.264 |
| | Yield (pdw) | 21.154±0.551 | 19.806±0.453 | 20.82±0.32 |
| Neck | Weight (g) | 242.0±6.16 | 190.25±4.41 | 208.96±4.87 |
| | Yield (plw) | 7.766±0.268 | 6.411±0.089 | 7.186±0.17 |
| | Yield (pdw) | 11.329±0.288 | 9.754±0.165 | 10.587±0.201 |
| Wings | Weight (g) | 384.0±9.80 | 336.0±17.47 | 333.83±7.33 |
| | Yield (plw) | 12.304±0.186 | 11.202±0.115 | 11.437±0.154 |
| | Yield (pdw) | 17.97±0.368 | 17.04±0.203 | 16.882±0.207 |

plw = percent live weight. pdw = percent dressed weight.

V. HAEMATO-BIOCHEMICAL AND PHYSIOLOGICAL PARAMETERS

1. Physiological parameters

| Parameter | Males | Females | Overall (N=30) |
|--------------------------------|-------------|-------------|------------------------------------|
| Body temperature (°F) | 102.65±0.70 | 104.18±0.29 | 104.08±0.26 (range 101.4-106.6) |
| Respiration rate (breaths/min) | 16.50±2.06 | 19.80±0.96 | 17.16±0.75 (range 12-24) |
| Heart rate (beats/min) | 77.00±12.72 | 54.00±7.39 | 60.57±5.09 (range 44-108) |

2. Biochemical parameters

| Parameter | Males | Females | Overall (N=30) |
|-------------------------|-------------|--------------|------------------------------------|
| Glucose (mg/dl) | 231.82±8.81 | 217.89±7.37 | 216.31±5.52 (range 183.8-258.1) |
| Total protein (g/l) | 21.15±1.34 | 21.91±2.06 | 21.588±1.291 (range 11.8-33.4) |
| Cholesterol-LS (mg/dL) | 111.43±6.99 | 131.43±17.19 | 123.01±10.42 (range 74.3-240) |
| HDL-cholesterol (mg/dl) | 28.72±2.62 | 29.27±3.48 | 29.04±2.242 (range 2.8-43.9) |

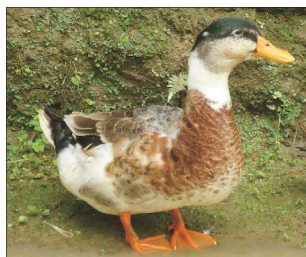
3. Haematological parameters

| Parameter | Males | Females | Overall (N=30) |
|---|-------------|-------------|------------------------------------|
| Haemoglobin (mg/dl) | 11.22±0.33 | 11.69±0.25 | 11.52±0.20 (range 9.6-13.9) |
| ESR (mm/hr) | 0.09±0.03 | 0.12±0.02 | 0.1±0.17 (range 0-0.20) |
| PCV (%) | 51±2.48 | 48.8±2.85 | 50.08±1.82 (range 41.0-65.0) |
| TEC (10 ⁶ /mm ³) | 3.16±0.11 | 2.99±0.11 | 3.06±0.78 (range 2.2-3.9) |
| TLC (10 ³ /mm ³) | 75.44±8.98 | 61.95±3.36 | 67.01±4.08 (range 38-134) |
| MCV (m ³) | 166.76±8.72 | 165.39±5.97 | 166.13±5.35 (range 123.9-232.6) |
| MCH (pg) | 37.15±1.66 | 39.55±1.95 | 38.25±1.27 (range 28.2-55.7) |
| MCHC (%) | 22.45±0.58 | 23.96±0.82 | 23.14±0.50 (range 18.3-27.8) |
| Neutrophils (%) | 90.17±1.28 | 88.94±1.83 | 89.27±1.36 (range 76-98) |
| Lymphocytes (%) | 7.0±1.34 | 8.06±1.74 | 7.77±1.30 (range 0-24) |
| Monocytes (%) | 2.83±0.83 | 3.0±0.555 | 2.95±0.45 (range 0-8) |
| Basophils (%) | 0 | 0 | 0 |

PATI DUCK

I. GENERAL DESCRIPTION

| | |
|---|--|
| 1. Name of the breed | Pati |
| 2. Synonyms | Local |
| 3. Background for such a name/ origin | Not known |
| 4. Since when the breed is known | Time immemorial |
| 5. Strains (or within breed types) | None |
| 6. Most closely related breeds/ populations (in appearance) | Nageswari, Chara and Chemballi |
| 7. Origin of the breed (Indigenous/ Exotic) | Indigenous |
| 8. Origin if imported (name of the country) | None |
| 9. a. Native tract of distribution in terms of longitude and latitude | Between 89°42' and 96°E Between 24°80' and 48°20'N |
| b. Approximate area of distribution (sq. km) | 63,000 |
| c. Place(s) | State: Asom District(s): All districts (Entire Assam) |
| 10. Estimated population | |
| a. Year of estimation | 2012 |
| b. Population | 18.21 lakhs (Breedable males- 2.17, Breedable females-14.15 and Duckling (< 6 months)-1.89 lakhs) |



Pati-male



Pati-female

| | |
|--|--|
| <p>c. Source/Reference</p> <p>11. a. Communities responsible for developing the breed in the rural</p> <p>b. Description of community (Farmers/Nomads/Isolated/Tribes)</p> <p>12. Flock: Average size Composition</p> <p>13. Utility of the breed (Egg/Meat/ Game/Others)</p> <p>14. Any other information</p> | <p>Statistical Handbook, Asom, 2016</p> <p>Different communities living areas of Asom are engaged in duck farming and rearing. All the communities of the state of Asom living in rural areas are practicing traditional duck farming in backyard system</p> <p>7.92 (Range 5-109) Drakes: 11.96%, Ducks: 77.68%, Ducklings (<6 months) 10.36%</p> <p>Meat, Egg and Ritual sacrifices</p> <p>The rural areas of the state are full of rivers, plenty of surface water with lake and pond. In summer, most of the areas are covered with paddy cultivation with abundant surface water, which favour duck farming. Shelter to the ducks is provided in the night only. The duck houses are made of locally available materials viz., bamboo and wood, and erected near or inside the farmers dwelling. Scavenging with supplement feeding is the most common feeding system.</p> |
|--|--|

II. PHYSICAL CHARACTERS

| | |
|------------------|--|
| <p>1. Colour</p> | <p>Drakes are predominantly dark brown in plumage colour with or without white ring in</p> |
|------------------|--|

| | |
|--|--|
| <p>2. Plumage pattern</p> <p>3. Bill colour</p> <p>4. Skin colour</p> <p>5. Shank colour</p> <p>6. Eye colour</p> <p>7. Feet/Web</p> | <p>the neck, greenish black head and black and white feather in the tail. The ducks are solid brown in plumage colour or with or without white ring in the neck.</p> <p>Plumage pattern is predominantly dark brown in drake and solid brown in duck</p> <p>Predominant colour of bill is yellow</p> <p>Predominant skin colour is yellow over orange and black</p> <p>Majority of the birds are with yellow shank</p> <p>Black is the predominant colour of the eye</p> <p>Main colour of feet/web is dark yellow</p> |
|--|--|

III. PERFORMANCE

| | | | |
|--|--|-------------|--|
| 1. Egg production characteristics | | | |
| Trait | Average | Range | N |
| Age at first egg (days) | 174.66 | 159-193 | 783 |
| Annual egg production (28 weeks production) | 86.30 | 75-93 | 1866 |
| Age at culling (days) | 504.63 | 465-730 | 700 |
| Clutch size (days) | There is no discernible clutch size | | |
| Clutch interval (days) | Erratic pattern of egg production & no regular clutch interval | | |
| Laying cycle (months) | 7 months (March to September) | | |
| 2. Egg quality traits | | | |
| Trait | Average | Range | N |
| Egg weight (g) | 56.83 | 54.3-58.6 | 600 |
| Shell weight (g) | 7.283 | 6.9-7.7 | 600 |
| Albumen weight (g) | 32.96 | 28.2-36.3 | 600 |
| Yolk weight (g) | 15.91 | 12.7-18.6 | 600 |
| Shell thickness (mm) | 0.34 | 0.31-0.36 | 600 |
| Specific gravity | 1.219 | 1.173-1.288 | 600 |
| Albumen index | 0.182 | 0.179-0.185 | 600 |
| Yolk index | 0.875 | 0.834-0.921 | 600 |
| Haugh units | 87.53 | 82.63-91.27 | 600 |
| Shell colour (white/brown / cream or tinted/other) | | | Cream, White and Brown |
| Albumen quality (thick/thin) | | | Thick |
| Egg inclusion bodies (Blood spots/meat spots) | | | Nil |
| 3. Reproduction characteristics | | | |
| a) Broodiness | | | |
| | | | The presence of broodiness characters among the flock of local ducks of Asom |

was observed in 60% of the birds. The characters were seen during 40 to 48 weeks of age.

b) Fertility and hatchability percentage (under natural hatching/incubation)

| Parameter | Average | Range | N |
|---------------------|---------|-------|-------|
| Fertility | 83.74 | 70-90 | 17809 |
| Hatchability on FES | 70.83 | 60-75 | 12767 |
| Hatchability on TES | 59.68 | 51-67 | 12767 |

4. Growth characteristics

a) Body weight

| Body weight at | Average | Range | N |
|----------------|---------|-------------|------|
| Hatching (g) | 35.48 | 33.2-38.8 | 3068 |
| 8 weeks (g) | 315.75 | 301.1-325.4 | 2295 |
| 12 weeks (g) | 563.34 | 526.5-578.3 | 2149 |
| 12 months (kg) | 1.67 | 1.3-1.8 | 1283 |

b) Body measurements (cm)

| Parameter | Male | | Female | |
|--------------------|---------|-----------|---------|-----------|
| | Average | Range | Average | Range |
| No. of observation | 886 | 1997 | | |
| Bill length | 5.27 | 4.1-6.0 | 5.04 | 4.6-6.1 |
| Bill width | 3.74 | 2.7-4.4 | 3.42 | 2.9-3.8 |
| Head length | 7.88 | 5.8-8.9 | 7.69 | 6.1-8.5 |
| Head width | 3.06 | 2.7-3.9 | 2.98 | 2.0-3.4 |
| Neck length | 17.61 | 13.5-19.9 | 15.16 | 13.7-17.9 |
| Breast length | 14.31 | 9.8-20.6 | 13.86 | 7.6-19.7 |
| Body length | 61.82 | 54.7-65.2 | 58.33 | 49.7-61.4 |
| Wing span | 85.93 | 76.3-94.4 | 81.26 | 77.6-86.5 |
| Body circumference | 39.13 | 30.6-46.3 | 36.68 | 32.5-41.8 |
| Shank length | 5.38 | 4.5-6.1 | 5.10 | 4.8-5.9 |

5. Mortality percentage

| Age | Average | Range | N |
|---------------|---------|----------|------|
| 0-1 week | 16.50 | 9.5-24.3 | 3000 |
| 1-8 weeks | 8.28 | 1.5-20.3 | 2600 |
| 8-20 weeks | 2.52 | 1.4-4.5 | 2540 |
| 6 – 12 months | 3.92 | 0.4-4.3 | 2430 |

6. Carcass characteristics

| Trait | Male | | | Female | | | |
|-------------------------|---------|-----------|-----------|---------|-----------|-----------|----|
| | Average | Range | N | Average | Range | N | |
| Age at slaughter (days) | 280 | 261-285 | 60 | 280 | 261-285 | 60 | |
| Weight (kg) | Hot | 1.43 | 1.4-1.5 | 60 | 1.36 | 1.3-1.4 | 60 |
| | Cold | 1.31 | 1.2-1.4 | 60 | 1.28 | 1.2-1.3 | 60 |
| Dressing % | Hot | 59.57 | 56.2-62.5 | 60 | 60.52 | 58.1-62.3 | 60 |
| | Cold | 58.11 | 55.0-61.8 | 60 | 58.96 | 57.6-61.8 | 60 |
| Meat bone ratio | 1.687 | 1.38-1.86 | 60 | 1.734 | 1.56-1.88 | 60 | |

7. Stress tolerance

- (a) Drought tolerance High
(b) Heat tolerance High

HANSLI CHICKEN

I. GENERAL DESCRIPTION

- Name of the breed
- Synonyms/Local name

Hansli

No. However depending on the plumage colour, local people call Hansli birds by different names such as Kalua (Black color), Dhobla (White colour), Rangua (Light red), Nalia (Red), Khadia (mixture of black, green and golden), Jhinjiria (Multicolour spots on red background), etc.

- Background of such name

The name Hansli seems to have originated from the word 'Hans' which means Swan. Due to the tall size and majestic gait of the birds like that of Swan, the local people call these birds 'Hansli'.

- Since when the breed is known

Origin of the breed/population is not known. The owners of the stock say they are raising these fowls since their known memory inheriting from their parents and grandparents.

- Strains (or within breed types)
- Most closely related breeds
- Origin of breed (Indigenous/Exotic)
- Origin, if imported
- a. Native tract of distribution in terms of longitude and latitude

None
Aseel
Indigenous
Not applicable
Between 85°15' and 87°30' E
Between 21° and 22°30' N

- b. Approx. area of distribution

5,000 km²

- c. Place

State: Odisha
District(s): Mayurbhanj, Keonjhar



Hansli-male



Hansli-female

| | |
|---|---|
| 10. Estimated population | |
| a. Year of estimation | 2015-16 |
| b. Population | 12,000 approximately |
| c. Source/Reference | Survey conducted under AICRP during 2015 and 2016 |
| 11. a. Communities responsible for developing the breed | Hansli birds are patronized by people of all caste and communities. The major players in the field are general caste community such as Mohanta and tribal communities such as Shantala and Bhumija. As the birds are priced very high due to fighting ability, many other people belonging to different tribal and non tribal communities in urban and peri-urban areas are also maintaining these birds. |
| c. Description of community | The communities maintaining the breed in rural areas belong to small and marginal farmers or land less labourers category of non-nomadic type whereas in urban and peri-urban areas people maintaining the breed are service holders and small business owners. |
| 12. Flock: Average size | 20 |
| Composition | Cocks 17.16%, Hens 27.06%, Chicks 55.78% |
| 13. Utility of the bird (Eggs/Meat/ Game/Others) | Game and Meat |
| 14. Any other information | The birds are distributed throughout the Mayurbhanj district but predominately found in Khunta, kaptipada, Udala, Suliapada, Shyamakhunta, Thakurmunda, Bangiriposhi, Saraskana and Kuliona blocks and adjacent areas of Patna and Sarpada blocks of Keonjhar |

district. Breeding tract is mostly confined to areas surrounding the Similipal National park and biosphere reserve.

II. PHYSICAL CHARACTERS

| | |
|----------------------------------|--|
| 1. Colour | |
| a) Plumage colour | Females are mostly black in colour (80.11%) followed by brown (11.57%), gray (5.07%), white (2.89) and multi colour (0.36%). Males are mostly black in colour. Hackle and saddle feathers are predominately rich golden yellow or red in males. |
| b) Plumage pattern | Solid in females |
| c) Skin colour | Light pink to dark pink |
| d) Shank colour | Yellow (dark in layers) |
| e) Earlobe colour | Red |
| f) Comb colour | Light to dark Red |
| g) Eye ring colour | Pearl |
| 2. Comb | |
| a) Type | Pea |
| b) Size | Medium to large |
| 3. Other specific visible traits | Spur is present in males and is well developed in adults. Wattles are small and rudimentary in males and almost absent in females. Neck is fairly long with plenty of hackle feathers flowing over the shoulder in males. Hackle feathers are less in females compared to males. Neck feathers in both the sexes are moderately close. Beak is small, strong and stout at the base, narrow and blunt at the tip and light yellow in colour. Wings are medium to large in size, situated close to the body, well folded and carried horizontally. |

III. PERFORMANCE**1. Egg production characteristics**

| Parameter | Average | Range | N |
|---------------------------|---------|---------|-----|
| Age at first egg (months) | 7.22 | 5.8-8.5 | 100 |
| Annual egg production | 67.31 | 39-96 | 100 |
| Clutch size (days) | 5.59 | 4-8 | 100 |
| Clutch interval (days) | 1.59 | 1-4 | 100 |
| Laying cycle (months) | 2.23 | 2-2.5 | 100 |

2. Egg quality traits

| Parameter | Average | Range | N |
|--|----------------------|-------------|----|
| Egg weight (g) | 46.25 | 37- 62 | 46 |
| Shell weight (g) | 5.72 | 4.9-6.6 | 46 |
| Albumen weight (g) | 27.14 | 18-44 | 46 |
| Yolk weight (g) | 13.39 | 11-18 | 46 |
| Shell thickness (mm) | 0.41 | 0.21-0.54 | 46 |
| Specific gravity | 1.045 | 1.03-1.06 | 46 |
| Albumen index | 0.081 | 0.051-0.135 | 46 |
| Yolk index | 0.44 | 0.304-0.629 | 46 |
| Haugh units | 81.79 | 67.31-98.50 | 46 |
| Shell colour (white/brown/cream or tinted/other) | Cream or Light Brown | | |
| Albumen quality (thick / thin) | Thick | | |
| Egg inclusion bodies (Blood spots/meat spots) | Nil | | |

3. Reproduction characteristics**a. Broodiness**

(Usual/sometimes/rare/others)

Usual

b. Fertility and hatchability (%)

| | Average | Range | No. of Hatches |
|-----------------------------------|---------|-----------|----------------|
| Fertility | 78.43 | 40.0-96.4 | 38 |
| Hatchability on fertile egg basis | 66.67 | 29.3-100 | 38 |
| on total egg basis | 52.01 | 21.8-85.0 | 38 |

4. Growth characteristics

| | Male | | | Female | | |
|--------------|---------|---------|-----|---------|---------|-----|
| | Average | Range | N | Average | Range | N |
| Hatching (g) | 31.15 | 19-40 | 241 | 30.43 | 18-40 | 696 |
| 4 Weeks (g) | 165.49 | 51-468 | 262 | 169.07 | 55-418 | 798 |
| 8 Weeks (g) | 492.30 | 198-830 | 282 | 404.17 | 108-770 | 802 |

| | | | | | | |
|------------------|---------|-----------|-----|---------|-----------|-----|
| 12 Weeks (g) | 915.36 | 393-1507 | 312 | 716.84 | 195-1325 | 910 |
| 16 Weeks (g) | 1340.48 | 592-1970 | 244 | 1023.95 | 348-4787 | 568 |
| 20 Weeks (g) | 1704.01 | 912-2530 | 243 | 1334.72 | 455-2427 | 236 |
| Adult weight (g) | 3791.54 | 3103-4735 | 146 | 2517.39 | 1866-3658 | 154 |

5. Mortality (%)

| Age | Average | Range | N |
|------------|---------|----------|------|
| 0-1 weeks | 4.38 | 0-9.76 | 1371 |
| 1-4 weeks | 5.48 | 2.6-7.5 | 1310 |
| 1-8 weeks | 7.73 | 5.1-12.5 | 1310 |
| 8-12 weeks | 3.13 | 2.3-4.0 | 1192 |
| 8-16 weeks | 4.66 | 2.3-8.0 | 1192 |
| 8-20 weeks | 5.86 | 2.3-8.8 | 412 |

6. Carcass characters

| Trait | Male | | | Female | | |
|----------------------------|---------|-----------|-----|---------|------------|-----|
| | Average | Range | N | Average | Range | N |
| Age at slaughter (days) | 114.5 | 112-117 | 20 | 114.5 | 112-117 | 20 |
| Weight (kg) Hot | 982.83 | 864-1240 | 20 | 775.33 | 720-992 | 20 |
| Cold | 897.83 | 780-1150 | 20 | 707.16 | 649-898 | 20 |
| Dressing % Hot | 75.79 | 73.6-77.2 | 20 | 72.46 | 67.5-76.7 | 20 |
| Cold | 69.75 | 68.6-72.0 | 20 | 66.65 | 61.4 -70.1 | 20 |
| Meat: Bone ratio | 2.118 | 1.85-2.52 | 20 | 2.512 | 2.34-2.63 | 20 |
| Feed conversion efficiency | 0.15 | 0.13-0.17 | 244 | 0.13 | 0.12-0.14 | 568 |
| Feed conversion ratio | 6.58 | 5.93-7.55 | 244 | 7.79 | 7.11-8.37 | 568 |

7. Any other information specific to the breed

| Morphological measurements | Male | | Female | |
|----------------------------|---------|-----------|---------|-----------|
| | Average | Range | Average | Range |
| Shank length (cm) | 15.24 | 13.8-16.3 | 12.05 | 10.5-13.1 |
| Keel length (cm) | 15.17 | 13.5-16.5 | 12.60 | 11.5-13.5 |
| Breast angle | 68.27 | 65-70 | 63.26 | 60-65 |
| Body girth (cm) | 40.12 | 36.5-45.5 | 32.93 | 30.5-35.5 |
| Head width (cm) | 3.79 | 3.5-4.3 | 3.13 | 2.8-3.4 |
| Body length (cm) | 58.19 | 54.5-61.5 | 46.57 | 43.7-49.5 |
| Height (cm) | 63.67 | 60-75 | 52.43 | 45-61 |
| Neck length (cm) | 22.04 | 20.5-25.5 | 19.16 | 17.9-20.5 |