



## The Native cattle breeds (Ongole and Punganur) of Andhra Pradesh- A white pearl and pride of Andhra Pradesh

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### *Abstract*

Ongole and Punganur cattle are considered as the popular native cattle breeds of Andhra Pradesh. Ongole and Punganur bulls rearing is a fashion and livelihood occupation of majority of the land lords. They provide income by means of milk and dung, moreover bulls are used for ploughing of agricultural land. The present article discusses in detail about the reproductive pattern of native breeds and its management in Andhra Pradesh climatic conditions.

### **Introduction**

Ongole and Punganur cattle are considered as the popular native cattle breeds of Andhra Pradesh for 21<sup>st</sup> century due to its higher adaptability and productivity in the changing climatic conditions of this state. Ongole cattle are known for their toughness, rapid growth rate, and natural tolerance to tropical heat and disease resistance. It was the first Indian breed of cattle to gain worldwide recognition. Punganur dwarf cattle which originated from the Chitoor district of Andhra Pradesh in southern India is among the world's smallest humped cattle breeds. The Punganur breed's milk has a high fat content. While cow milk normally has a fat content of 3 to 3.5 per cent, the Punganur breed's milk contains 8 per cent.

The Ongole and Punganur genetic resources in Andhra Pradesh are usually less diverse and south India harbours a variety of high milk yielding cattle breeds in the likes of Gir, Sahiwal and Red Sindhi. Among them, pure breeds of Ongole and Punganur find a place in university farms and large-scale commercial farm, whereas cross varieties of Ongole cows are found all over the coastal areas of Andhra Pradesh.



The Andhra Pradesh state experiences a tropical climate. The average temperature during the cooler months of December and January is 28°C, and in the summer months of May and June the temperature reaches 40°C. Most parts of the state in summer are hot and humid. The annual average temperature is 31.5°C. The state is principally fed by the southwest monsoon while the northeast monsoon contributes about one-third of rainfall. Andhra Pradesh is popularly referred to as the Rice Bowl of India because of its extensive rice cultivation.

Considerable correlation exists between the summer and anestrus conditions in buffaloes, however this statement is an exception for the cows especially Ongole and Punganur cattle, these breeds can perform very well even in low breeding season also. Conservation of native breeds concept slowly implemented in the rural area of Andhra Pradesh, which resulted in marginal increase in Ongole breed population in rural locality. They provide income by means of milk and dung. Moreover, Ongole and Punganur bulls rearing is a fashion and livelihood occupation of majority of the land lords. Hence, Ongole and Punganur cattle are described as “*White pearl and Pride of Andhra Pradesh*”. The present article discusses about reproduction in native breeds of cows and different approaches to improve the reproduction with special reference to Andhra Pradesh climatic condition.

## **Reproduction in cows**

Although Ongole cows are resistant to environmental stress, hormonal imbalance causes ovulatory disturbances and uterine gland changes in turn endometritis, during postpartum period. But, lesser incidences of ovulatory disturbances are observed in Punganur cattle than Ongole. The above said gynaecological conditions are responsible for an increased inter-calving period that culminates into economic losses for the dairy industry.

The common correlation between productivity and reproductive efficiency holds good in case of cows as well. Cows reared in village setting have low reproductive efficiency. The main objective of the animal breeder is to accomplish more young ones in a lifetime with reduced mortality.

## **Breeding Management of cows in Andhra Pradesh**

Most commonly followed breeding system in cows is artificial insemination and natural mating depends upon the availability and certain gynaecological conditions of female cows.

### **1. Artificial Insemination:**

The network project on native breed development of NDRI, ICAR facilitates breeding with the use of frozen semen of known pedigree and breeds such as Sahiwal, Red Sindhi, Gir and Pulikulam are included in this programme at present in other states of India. However, AP livestock agency are yet to actively



participate in this network project programme. Instead, “In-situ conservation of Punganur cattle” is in operation under non-plan scheme and National Agricultural Technology Project Conservation of Punganur germplasm adopted in Palamaner livestock research station; similarly, to conserve the native Ongole cattle in its breeding tract by conducting AI to the farmers cattle with superior germplasm at field level through the nodal agencies in Andhra Pradesh.

## **2. Natural Mating:**

Generally, in dairy cows, natural mating is followed. In certain states, proven or progeny tested bulls are used in breeding. Pertaining to Andhra Pradesh climatic condition bull cows are no longer used in the field by the farmers. As per our knowledge, only about 10 to 12 percent of farmers are utilizing the bull for breeding purpose. Moreover, 40 to 50 percent of organized dairy farms effectively use bull with optimum conception rate.

## **Major gynaecological problems encountered in native breeds:**

### **1. Delayed sexual maturity:**

Delayed sexual maturity in purebred female cows is common throughout India, especially in Andhra Pradesh next only to Tamil Nadu. Interestingly, few of the Ongole calf attains puberty (first cycle) at 3 years of age and majority of dairy cows calving occurs at 4-5 years of age. This is due to an inadequate supply of feed and nutrients during the growing phase.

### **2. Endometritis:**

Endometritis is a frequent uterine disorder affecting reproductive performance of cows, especially cows which were belonging to Vizianagaram, Srikakulam and Chittoor district. Clinical endometritis is evident by appearance of flakes of pus and/or a cloudy cervico-vaginal mucus discharge, however diagnosis of subclinical endometritis is difficult in field level. Cows with clinical and subclinical endometritis can be successfully treated with intrauterine infusion of 1% or 2% Lugol’s iodine solution along with parenteral antibiotic for 3 days and advised to skip the next cycle (sexual rest for one cycle). Recent research findings were demonstrated the treatment regimen for endometritis in cows with immunomodulators (*E.coli* LPS, Oyster glycogen and Lysozyme) and increase in conception rate.

### **3. Ovulatory disturbances & Mucometra:**

The ovaries play the key roles in reproduction and any impairment in their functions can result in either sterility or infertility in cows. Ovarian disturbances are common in cows in next to endometritis. Ovulation in the cow is a typical since it occurs 10-12 h after the end of behavioral estrus and 18-26 h after the ovulatory LH peak. Ovulatory defects can occur due to two causes: *endocrine deficiency or imbalance*



*and mechanical factors*. It is a complex interaction between ovarian hormones, the anterior pituitary and the hypothalamus. Follicular cystic condition in turn causes excessive mucus secretion from endometrial gland resulted in mucometra or hydrometra in cows. Chronic cystic condition is not respond to hormonal treatment, however early diagnosis of condition may response to exogenous hormones in certain extend.

#### **4. Early embryonic losses/luteal insufficiency:**

Embryo survival is a major factor affecting reproduction and economic efficiency. The majority of embryonic loss (70-80%) occurs in the first 3 weeks of pregnancy, particularly between days 7 and 16 of pregnancy in cows. Most of the Ongole cows presented from rural locality suffer from luteal insufficiency which might be due to hormonal imbalance in association with poor nutritional management. This condition is treated with administration of GnRH analogous (Gynarich, Receptal) or Progesterone hormone (Duragprogen) at day 5 and 13 of pregnancy in cows. To restore/protect the epithelium of the uterus by administration of Repronol (Vit E & Se) and Vit-A 3-5 days once for 2 weeks along with oral mineral mixture (50 gm/day).

#### **Approaches for improving reproductive efficiency of cows in farmer field:**

##### **Role of Veterinarian's:**

- Educate the farmers regarding reproductive patterns of cows especially, heat signs etc.
- Educate to improve the feeding standard of cows through guidelines mentioned by nutritionists (Village hospitals, University officers).
- Conduct regular health camps for rural farmers.
- Educate about breeding systems suitable for the particular region.
- Hormonal intervention to augment the fertility in cows by Andhra Pradesh state Veterinary ministry schemes
- Regular supply of area specific mineral mixtures and deworming to the rural farmers.
- Acquire the technical knowledge that can be employed at field level through online portal systems and University training programmes conducted by eminent staffs.
- Weekly or monthly interaction with farmers to monitor management strategies.
- Thorough gynaecological examination of presented cases and appropriate treatment and client education.
- Check the status of liquid nitrogen container and liquid nitrogen level. Evaluate the status and viability of spermatozoa at regular intervals. Inseminate the cows at standing heat (mid-late heat).



## **Role of Farmer's:**

- First and foremost thing is to follow the veterinarian's advice and lectures offered during health camps and visit hours.
- Feed the cows with recommended feeding standard (carbohydrate (energy), protein, vitamins and mineral mixtures).
- Regularly monitor and record the heat periods during early morning and late evening hours.
- Contact the veterinary doctors whenever cows have reproductive illness.
- Strictly adhering to the treatment regimen prescribed by a qualified practitioner.
- Regularly attend the health camps.
- Try to avoid self-treatment to the cows by neighbor advice or local person advice
- Wait for the appropriate age for sexual maturity.

## **Agency for Ongole and Punganur cattle breeding, management and treatment**

Andhra Pradesh Government actively participated in the breeding, management and treatment of native breeds (Ongole, Punganur) and crossbreds through various organized government and private sectors by employing Veterinary graduates (B.V.Sc and M.V.Sc).

### **I. Organized government sectors:**

#### **1. LAM farm, Guntur:**

Sri Venkateswara Veterinary University (SVVU) governing one of the famous livestock research station at LAM farm (Guntur District) in Andhra Pradesh with an objectives of establish an elite herd of Ongole cattle, develop a database on various aspects of Ongole cattle production and supply the elite Ongole male calves to the needy farmers.

Conservation of Ongole cattle was commenced from 1-4-2014 under breed conservation programme of National Bureau of Animal Genetic Resources (NBAGR), Karnal sanctioned by ICAR, New Delhi for a period of 3 years beginning from 2014 -2015 to conserve the native Ongole cattle in its breeding tract by conducting AI to the farmers cattle with superior germplasm at field level through the nodal agencies. In addition, Embryo transfer technology was implemented from 2000 to 2007 and produced frozen embryos of native Ongole cattle.

#### **2. Palamaner livestock research station (PLRS):**

The Palamaner livestock research station (governed by SVVU) originally had Punganur breed of cattle. This breed was crossed with Kerry bulls imported from United Kingdom. These crossbreds



performed extremely well and became popular among the farming community of this area, because of high milk yields, up to more than 2000 liters compared to about 500 liters of Punganur cattle per lactation. Later, the station was developed as composite livestock farm to serve as a model demonstration unit and to supply superior breeding stock of Punganur cattle germplasm. Conservation of Punganur cattle is under progress to study breed characteristics, productive and reproductive performance.

“In-situ Conservation of Punganur Cattle” is in operation under non-plan scheme. Under National Agricultural Technology Project Conservation of Punganur germplasm has conserved 4000 doses of semen and sent to NBAGR, Karnal for ex-situ conservation.

## **Conclusion**

Understand the basic mechanisms of reproductive pattern in native breeds that belonging to Andhra Pradesh and this will certainly help to evolve packages of practices that will help to improve reproductive efficiency and in turn milk production in native breeds.

