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Characteristics of Cattle, Buffalo and Techniques used during A.I. At Adilabad and Karminagar Region of Telangana

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Abstract

AI is fully functional when it is corporate with good animal husbandry such as effective heat detection. Another reason for AI is to ensure effective use of semen. Adilabad and Karimnagar Districts were selected for study. Four cattle and two buffalo breeds were studied during present investigation. In Telangana region knowledge about A.I.is not reached to every corner where farmers work. Farmers in these regions are not improved communication and information to every farmer.

Keywords: A.I. Techniques, Punganuru, Manda, Podathurpu

1. Introduction

A.I. center of Karimnagar and Adilabad Districts were selected for study.It was conducted during one year. Popular Cattle breeds like Ongole, Pulikulam, Punganuru and Poda Thuru as well as Ganjam or Manda and Godavari like buffalo breeds were observed at this A.I. centre. Daily, Weekly, Monthly and Yearly data was collected and analyzed. India is resourceful country endowed with estimate largest livestock population in Telangana. The livestock sector has significant role in socioeconomic activity of the country and contributes much to the national economy which is about 17% of the national gross domestic product (GDP) and 36% of agricultural GDP. The most important constraints are widespread endemic diseases, includes lack of appropriate disease control policy, lack of appropriate services, lack improved livestock genetics, lack of attention from government regarding A.I. awakening. Even if Ethiopia has explained that indigenous cattle breeds productivity is low. Usually, cows do not produce their first calves earlier than 35-53 months of age. Cross breeding is an acceptable procedure for profitable livestock production. It has widely used in the world in order to enhance production of milk, meat, particularly at commercial farms. Robert [1] recorded are similar result

to this work [1] Significant heterosis values are usually obtained under optimum conditions by combining indigenous and exotic animals.

Cattle and Buffalo breeds in Telangana
1) Ongole cattle:
Ongole cattles are an indigenous cattle breed that originates from Prakasam District in the state of Andhra Pradesh in India. The breed derives its name from the place the breed originates from Ongole. These cattle's are commonly used in bull fights in Mexico and some parts of East Africa due to their strength and aggressiveness. They also participate in traditional bull fights in Andhra Pradesh. It was the first breed of cattle to gain worldwide recognition. Milk yield is 600 to 2518 kg per lactation.

2) Pulikulam:
Pulikulam is a popular draught and game breed of Tamil Nadu. It is named after its village of origin (Pulikulam in Tamil Nadu) and is also known as "Palingumaadu", "Mani Maddu", "Jallikattumaadu", "Mattumaadu" and "Kilakatumaadu". Madurai, Sivaganda and Virudhunagar districts of Tamil Nadu form its breeding tract.This is compact and draught breed fiend in Telangana region also. Males are dark grey in colour. The annual milk yield for pulikulam cow is 600 to 800kg only.

3) Punganuru:
Punganur cattle wich originated from the chittor District of Andhra Pradesh in Southrn India is among the world's smallest humped cattle breed which has less milk production with compare to Sahiwal. This breed is white and light grey in colour. Milk yield is 3-5 kg per day.

4) Poda Thurpu:
Poda Thurpu is also known as Thurpu. In western parts of Telangana, they are commonly known as Thurpu Edlu. Nagrkurnool district of Telangana state is the breeding tract of this breed. Bullocks are powerful and very good for heavy ploughing and carting heavy loads, but cows are low milk production. Brown spots on white skin, daily milk yield ranges from 2-3kg only.

Buffalo Breeds
1) Manda / Ganjam:
The Manda buffalo breeds in the hills above Parlakimedi and Mandasa on the borders of Orissa and Andhra Pradesh. It is also known as water buffalo, which yield good milk production. The general colour is brown or grey with yellowish stuff of hair on the knees and fetlocks. The switch is yellowish. Daily milk yield ranges from 5-6 liters per day.

2) Godavari:
It is a lesser known breed of buffalo, having their breeding tract in east and west Godavari districts of Andhra Pradesh. This breed has their origin from interbreed crossing, followed by grading of local non-descript buffaloes with murrah breed. The animals of this breed are also found in areas of Tanuka, Bhimava-ram, Narasapur, Ramachandrapuram, Kothapeta, Alamurulauqa and part of Tadepanigudem and Kovur, Krishna deltaic areas of Gudlavalluru. Colour is predo-minantly black with spare hair coat of coarse brown hairs. Daily milk yield ranges from 7-10 lit. Udder is medium in size, bowl shaped and well placed medium sized teats. Milk yield is around 2050 kg per lactation.

2. Methodology

During present study the cattle breeds obtained in Telangana state was observed their phenotypic and genotypic characteristics and studied A.I Techniques used in Adilabad and Karimnagar. Artificial Insemination (Al) or introduction of semen in the female genital tract by means of instruments is the first generation of reproductive biotechnologies which was feasible in cattle. It is a process by which sperms are collected from the male, processed, stored and artificially introduced into the female reproductive tract for the purpose of conception. Biswas and Roy [2] also studied with the same objectives. The study was to find out the role of artificial insemination to enhance the share of improved breed livestock population. And explore the possibilities to minimize the constraints in this respect. To fulfill the objective of the study necessary information and data have been collected from various authentic sources and the primary data

have been generated by using selective questionnaire schedules by purposive random sampling Daily, Weekly, Monthly and Yearly data was collected and analyzed for study.

Estrus and estrus detection:
Estrus has been defined as period when the Cattle shows characteristic sexual behavior, such as immobility, raising the hind quarters or arching the back, pricking of the ears-features that are collectively termed lordships in small laboratory animals; mounting and riding behavior between females is common. After detection of estrus the process of A.I. were applied with scientific techniques through expert veterinarian.

Techniques of Semen Collection:
The object of semen Collection was to collect the maximum number of viable spermatozoa per ejaculation.

The Common methods of semen collection are:
A) Artificial vagina method   B) Electroejeculation
C) Massage method
After collection of semen it was evaluated by following method but many times already evaluated semen was used for A.I. in both districts i.e. Adilabad and Karim Nagar region.

Evaluation of Semen
The various method of semen evaluation can be grouped as follows: A) Macroscopic B) Microscopic C) Biochemical tests D) Bacteriological tests.
Above mentioned techniques are similar which are recorded by Bikane [3] Only Superior quality of semen was used during present study.

Timing of insemination:
Maximal conception is obtained when cows are inseminated between mid-estrus and the end of standing estrus, with good results up to 6 hours after estrus. A successful heat detection program and subsequent proper timing of insemination will pay dividend in increasing reproductive efficiency. Ahmed [4] studied that conducted to Artificial insemination is placing collected fresh, stored or cryopreserved semen intravaginaly, trans cervical or intrauterine artificially.

Methods of controlling estrus:
In cattle with active ovaries, the estrous cycle can be manipulated by administration of prostaglandin to induce early regression of the corpus luteum Robert *et al*. [1] and by the use of progestagens that act as an artificial corpus luteum. Synchronization of estrus and ovulation can be conducted by the use of either, PGF2 or the combination of the two where the former is injected 7 days before the latter to induce a new follicular wave. Kubkomawa [5] was carried out to review AI practices as rapid means of improving milk, beef production and reproductive efficiency in tropical Africa. It is also to showcase the place of AI in livestock industry with the aim of encouraging farmers to adopt the technology for better livestock production. Kasimanickam [6] was concluded that besides strengthening the training of inseminators, investigation on semen freezing technique and sperm dose packing are needed to be undertaken to improve the conception rate in field.

3. Results and Discussion

It is noted that the maximum insemination was recorded to 5 buffaloes on Monday in Karimnagar Animal Husbandry Center. Zambelli and Cunto [7] also recorded that many studies have reported new reproductive techniques for reproduction in endangered non-domestic fields; Artificial insemination is an important tool for developing breeding programs. This manuscript reviews recent progress in feline artificial insemination, with particular emphasis on intrauterine sperm deposition. Tapone [8] designed the study to test the effect of fixed-time artificial insemination (fixed-AI) after slightly modified protocol on the pregnancy rate in beef cattle in Finnish field conditions. The modification was aimed to optimize the number of offspring's per AI dose. The maximum Number of cow's insemination was done 3 on Wednesday on Karimnagar Animal Husbandry center. Rathod *et al.* [9] also reported that India is blessed with the highest population of Dairy animals, but has very poor productivity which may be due to various factors such as lack of improved breeding and feeding services, access to markets, capital, inputs and technology. Although professionals have pointed out artificial insemination (AI) as an

emerging technology of socio-economic importance, for easy understand to the students fig.1 is taken from google. The ground realities or practices about AI is entirely different. The frequency of insemination was very different due to breed of animal and interval of calving period. Lembert [10] explained historical background of A.I. i.e. it has been used extensively in the large breeding centers in Russia and is being used in cooperative artificial insemination is being used exclusively as means of obtaining the services of a proved sire for the members of the associated actions. Maximum two cows and three buffaloes were inseminated per week in Adilabad A.I. centre.

It is noted that the maximum insemination was recorded to the buffaloes i.e. 40 in February Adrian P. Ybanez *et al.* [11] investigation was also carried out on Artificial insemination (Al) is a reproductive biotechnology that may be influenced by several factors, including the profile of the technicians and the practices used. Assessing technician's profile and their A.I practices can be significant in improving A.I success rate. Aim" This study aimed to know the profile and current practices used by Al technicians (AITs), to determine the success rates of Al in water buffaloes. While It is very less in March because buffalo is cold loving animal so the maximum buffaloes are come into heat in winter. While minimum 16 cows were inseminated in March.

Table 1. Showing proper timing of insemination

Cows showing estrus	Should be inseminated	To be late for good results
In the morning	Same day	Next day
After noon	Morning of next day or Early after noon	After 3 pm next day
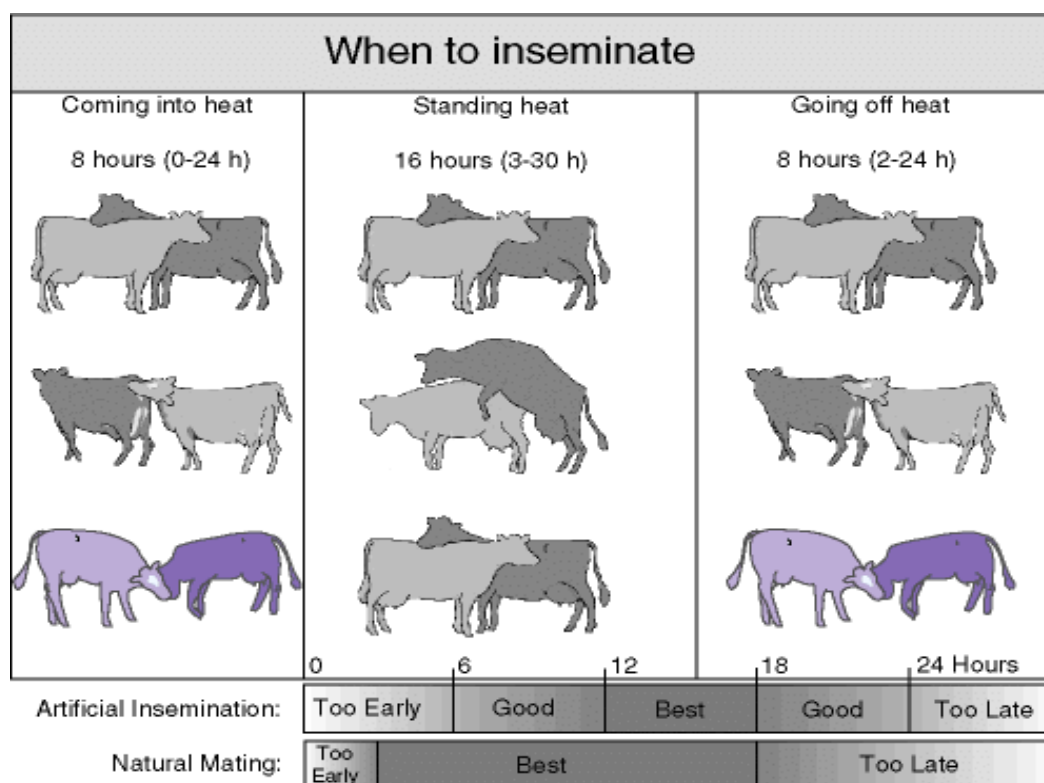
Source : google images

Fig. 1: Showing timing of insemination or natural service for cows in heat.

Table 2: Insemination dose on Adilabad Animal husbandry

Sr. No.		Date	No.of A.I. I/II/I/II	Name & Address of farmer	Descr iption of cow/ buffalo	Breed & Bull No.	No. of FS straws Utilized	A.I. Fee with Receipt No.	Pregnancy Verification	
Yearly	Monthly								Date	Result
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**11**	**12**
103	1	13.04.21	II	Ayubai Markagunde	NDC	OB	1-3205	21	30.07.21	-ve
104	2	13.04.21	II	Rajesh Indhrally	NDC	OB	1-3205	22	13.07.21	+ve
105	3	15.05.21	II	Kalyankar Adilabad	NDC	OB	1-3205	22	15.07.21	+ve
10	4	16.05.21	I	Narayana Ramnagar	NDC	OB	1-3205	23	16.07.21	-ve
107	5	18.04.21	I	Aiswin Ramnagar	NDC	OB	1-3205	24	18.07.21	-ve
108	6	20.04.21	I	Kamble Mukindrao	NDC	OB	1-3205	24	20.07.21	+ve
109	7	20.04.21	I	Shaivaji B	NDC	OB	1-3205	23	20.07.21	-ve
110	8	22.04.21	I	Suryakant	NDC	OB	1-3205	23	22.07.21	+ve
111	9	24.04.21	I	Vishal	NDC	OB	1-3205	24	24.07.21	+ve
112	10	25.04.21	I	Manikrao Dhonara	NDC	OB	1-3205	23	25.07.21	+ve

Bull No. 3206

No.A.I.dose			
I	II	III	Total
13+	5+	0 =	18
No. of animal found positive			
I	II	III	Total
8+	2+	0=	10

NDC = Non descriptive cattle
OB   = Ongole Breed

ABSTRACT

No. of verification dose			
I	II	III	Total
13+	5+	0 =	18
No. of calf born			
	M+	F	Total
	5	5=	10

Table 3: Weekly Insemination doses In Adilabad and Karimnagar

Day	Adilabad				Karimnagar			
	Cow	Buffalo	Goat	Sheep	Cow	Buffalo	Goat	Sheep
Sunday	-	2	-	-	-	1	-	-
Monday	2	2	-	-	2	5	-	-
Tuesday	1	1	-	-	2	3	-	-
Wednesday	1	3	-	-	3	2	-	-
Thursday	2	1	-	-	1	2	-	-
Friday	2	1	-	-	2	3	-	-
Saturday	0	1	-	-	1	2	-	-

Table 4: Monthly Insemination doses

Month	Cow	Buffalo	Goat	Sheep
January	18	38	-	-
February	19	40	-	-
March	16	36	-	-
Total	126	203	-	-

Table 5: Yearly Insemination doses

Month	Cow	Buffalo	Goat	Sheep
January	27	43	-	-
February	34	41	-	-
March	31	33	-	-
April	18	16	-	-
May	19	19	-	-
June	39	16	-	-
July	24	19	-	-
August	14	22	-	-
September	25	27	-	-
October	24	31	-	-
November	35	27	-	-
December	38	30	-	-
Total	305	324	-	-

Yearly total Cow and buffalo doses are 629

A.I. NDC were Crossed by Jersy, H.F. Gir with Ongole also. NDB Cross provided A.I. of Murrah, Jafrabadi, Godavari. It is noted that the maximum inseminations were done to the buffaloes in January i.e. 43 the maximum buffaloes are come into heat in winter. While the maximum inseminations wear recorded 14 cows in August. Belayneh [12] his results are matches with the present investigation. The mean number of service per conception (NSC) in the current study was found to be 1.6 It was not significantly affected by previous season of calving, previous year of calving and parity. Non-return rate value of Harari region Major constraints of AI Service delivery system in the study area were feed shortage, problem in heat detection, service charge for AI, distance from AI service center and husbandry problem. Additional shortage of input for AI service activity particularly semen and liquid nitrogen was reported as constraint of artificial insemination service in the study area, which interrupt smooth delivery of AI service. Takuya [13] his investigation was carried on Cattle productivity in Japan has been declining though livestock farmers and breeders tried to use artificial insemination regularly. The reason behind this declining productivity is the poor evaluation of the applicability of artificial insemination.

Conclusion

An increased number of offspring from a superior sire can be produced when AI is employed in poor yielding cow. Traditional and artificial methods are used in Adilabad and Karimnagar Districts for improving the quality of breeds. The families which were adopted A.I. for their cattle and Buffalo observed that the increases in quantity of milk and lactation period also. The diseases free breeds were also recorded. Goat and Sheep like small breeds of animals were did not used A.I. application process at A.I. centre. So college students from farmers family should take interest in such valuable process.

Conflicts of interest: The author stated that no conflicts of interest.

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