Report

On

Artificial Insemination

At

Angul, Gajapati & Puri

For

P&C DEPARTMENT, GOVT. OF ODISHA
ODISHA SECRETARIAT

by

NATIONAL PRODUCTIVITY COUNCIL

A/7, Surya Nagar, Bhubaneswar-751003

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1.0 INTRODUCTION:

Artificial insemination (AI) was the first great biotechnology applied to improve reproduction and genetics of farm animals. It has had an enormous impact worldwide in many species, particularly in dairy cattle. The acceptance of AI technology worldwide provided the impetus for developing other technologies, such as cryopreservation and sexing of sperm, estrous cycle regulation, and embryo harvesting, freezing, culture and transfer, and cloning. The history dates back to 1300 AD, where in Arab countries artificial insemination was done in Arab Horse Breeders, however the major breakthrough was made by the Dutch scientist Dr. van Leeuwenhoek in 1677.In 1949 Polge, Smith and Parkes discovered cryoprotective effect of glycerol in frozen semen technology. This is most important milestone in the history of artificial insemination. This has given the first birth reported by Dr. Steward in 1951 from insemination with frozen semen in cooperation with Polge and Smith.

Genetic improvement in bovines is a long term activity and Government of India has initiated a major programme “National Project for Cattle and Buffalo Breeding” (NPCBB) from October 2000 over a period of ten years, in two phases each of five years, with an allocation of Rs. 402 crore for Phase–I. The history dates back to in 1939 where the first AI was done by Sampat Kumaran at ‘Palace Dairy Farm Mysore”. He inseminated large number of Halliker cows with semen of Holstein Friesian and got 33 cows pregnant. In order to consolidate gains made during Phase-I, Phase-II has been initiated from Dec 2006 with an allocation of Rs.775.87 crore. The NPCBB envisages genetic up gradation on priority basis with a focus on development and conservation of important indigenous breeds with an objective to

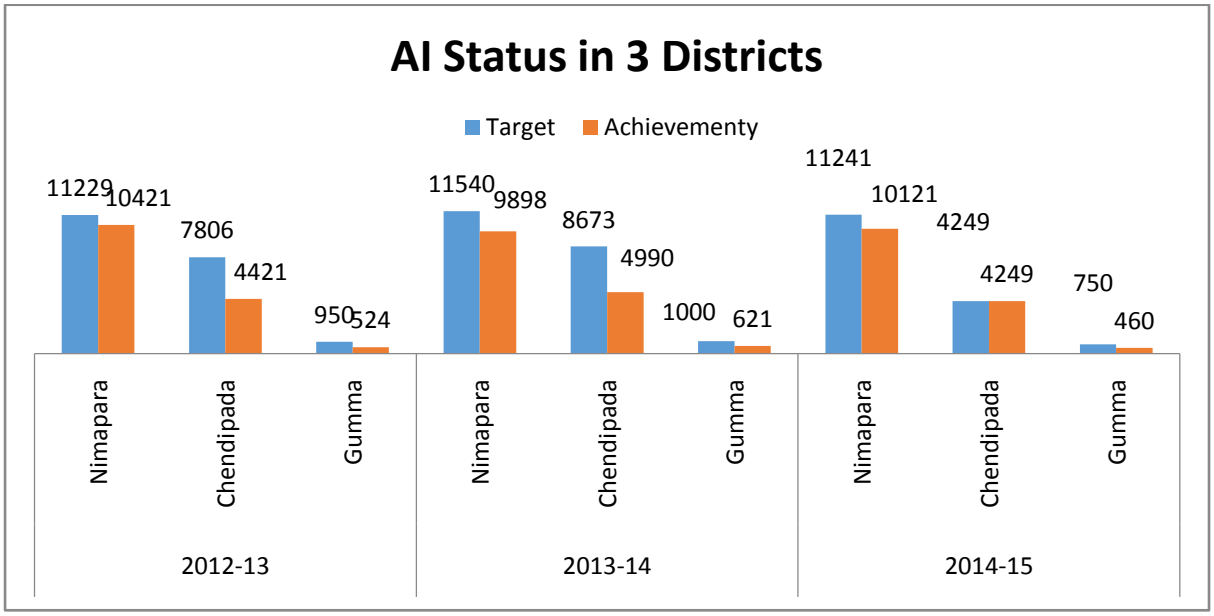
- Arrange delivery of vastly improved artificial insemination service at the farmer’s door-step.
- Bring all breedable females among cattle and buffalo under organized breeding through artificial insemination or natural service by high quality bulls within a period of 10 years.
- Undertake breed improvement programme for indigenous cattle and buffaloes so as to improve the genetic makeup as well as their availability.

2.0 ARTIFICIAL INSEMINATION (AI) IN ODISHA:

Livestock Production had always been an integral part of the rural livelihood systems in Odisha, all through the known history of the state. The predominant farming system in Odisha is the mixed crop-livestock farming system and over 90 per cent of farms of all categories conform to this farming system. The livestock wealth of Odisha is impressive in numbers across all species, constituting a natural resource base with immense livelihood implications, even though productivity levels are very low. Livestock holding in Orissa is equitable as over 80 per cent of all livestock are owned by the marginal / small holders and the land less. Some 80 per cent of all rural households own livestock of one species or the other, or a combination of some of them, cattle being the most popular and therefore, the preponderant species. The sector has ample scope to substantially enhance the production to meet the domestic market demands, create employment and income generating opportunities for the rural poor and enhance their food and livelihood security.

2.1 Artificial Insemination Status:

Figure 1: AI Target Vs Achievement (2012-15)



Source: (Data collected from O/o the CDVO)

The Artificial Insemination achievement as against the target of the state is only 68 %

3.0 OBJECTIVE OF THE EVALUATION STUDY:

To “Evaluate the Artificial Insemination in Odisha”, this study was conducted in three districts namely Angul, Puri and Gajapati by National Productivity Council, Bhubaneswar, The feedback had been collected both from official and also from the beneficiaries, selected on random from among beneficiaries of several selected villages. The main objectives of the study are as follows,

- To assess the institutional mechanism at the state and project levels and the role of Veterinary department and the implementation of AI.
- To evaluate the impact of AI on quality of life of rural people i.e. economic condition and Effect in Daily Life Style.
- To identify the AI promotion activities (i.e. mass media, participatory, incentive) undertaken by the project stockholders at various levels for creation of awareness in the rural areas.
- To identify the measures taken up by the PRIs (Panchayati Raj Institutions)/CBOs (Community Based Organization)/NGOs/Alternative
- Mechanisms for improving sustainability of AI services at the grass root level.
- To analyses the factors responsible for success and major constraints in Implementation of AI (government policies, funding, fragmented institutions, people’s attitude/ behavior) and to suggest the measures for the same.

4.0 FACTORS RESPONSIBLE FOR ARTIFICIAL INSEMINATION:

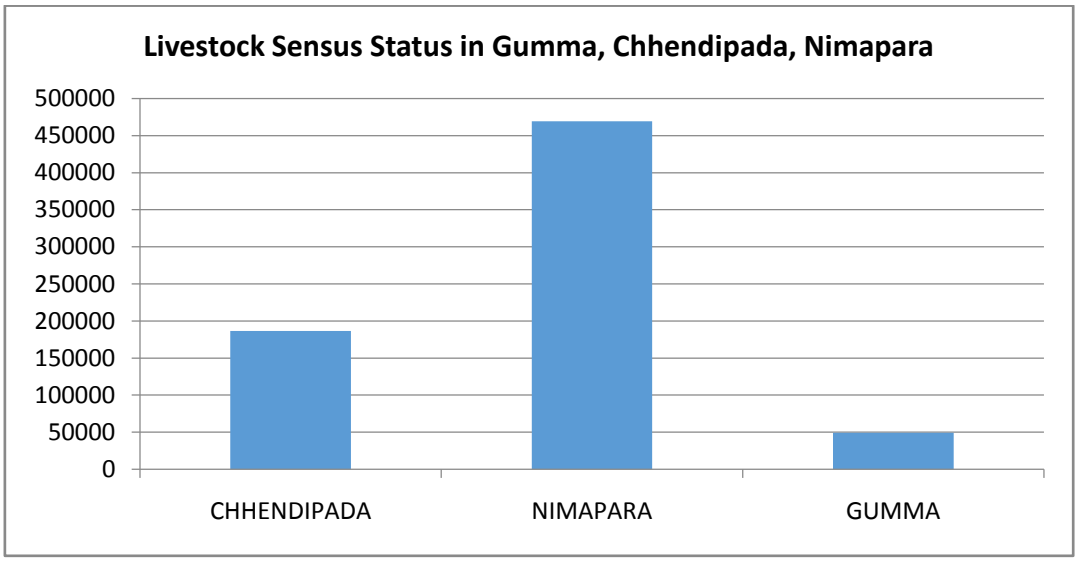
4.1 Breed able Cattle Population:

- ✓ Artificial Insemination is directly proportional to the breedable cattle population of the region; and accordingly the target is set at the state, district and Block level.

Nimapara	Chhendipada	Gumma
1. The breedable cattle Population of Puri is 452855 in 2012. **2**. In Puri the breedable Cattle Population is higher than other District due to awareness and availability of proper Milk route.	**1.** The breedable cattle population of the Angul district is 468101 in 2012. **2**. Due to awareness and opportunity in the cattle farming, the breedable cattle population increases in the district.	**1.** The breedable cattle population of the Gajapati district is 126850 in 2012. **2.** Due to limiting the scope of Artificial Insemination at the district. and a hilly terrain with majority of the tribal base the breedable cattle population status is very low.

- ✓ The total Livestock Population status are Represented in below Graph.

Figure 2: Livestock Status of Three Block



Source: Data collected from Dist. Official

4.2 Accessibility/Geographical Reach :

Nimapara	Chhendipada	Gumma
1.In Nimapara all the GP are easily accessible. 2.Due to freely accessibility area the Veterinary service reach to every areas.	1.In Chhendipada ,Due to Industrialization Disputes out of 34 GP's, 8 are not accessible. 2.In those areas the Service will Affected.	1.In Gajapati, 14 GPs out of which 19 GPs of the block are hard to reach. 2. Due to hard to reach hilly area the AI Status is very poor; the AI facility doesn't reach at time.

- The estrous cycle of cow is (~21 days or 18-24 days), thus after each cycle when the cow is under heat, the identification has to be done timely.
- After timely identification of the cow under heat, either the Livestock Inspector (LI) has to reach the location or the cow has to be brought to the Livestock Aid Center (LAC) for Artificial Insemination.
- Thus timely identification is very crucial for getting the cow artificially inseminated within 24 hours of the heat which is lacking in these hard to reach areas.

4.3 Local customary Cattle Farming Practice:

The local practice is as such the cattle are not stall-feed by the owners

Nimapara	Chhendipada	Gumma
1.In Nimapara due to awareness and milk product demand the AI is more adaptable.	1.In Chhendipada due to unavailability of milk route most of people adopt cattle as a traditional belief not in a business purpose 2.So many of them left their cattle free for grazing and	1.In Gumma due to Lack of awareness all the cattle are let free for grazing to the hilly areas and are kept in custody only during the agriculture harvesting period. 2. Due to the same it has

	these cows are naturally crossed with local / indigenous cattle and while ceasing the scope/ opportunity for Artificially Insemination for a better yield	become difficult to identify the cow under heat and/ or keeping track of the exact estrous cycle/ date for insemination. 3. Many of the time cows are naturally crossed with local / indigenous cattle while ceasing the scope/ opportunity for Artificially Insemination for a better yield.

4.4 Non Milk Consumers:

Nimapara	**Chhendipada**	**Gumma**
Nimapara is one of the Famous place for milk and milk made product here no one we found who don't like milk and milk Product.	In Chhendipada, due to unavailable of Milk route and less demand of milk Product most of the consumer are not interested in Milk Production and Cattle farming	The majority of habitants of the Gumma block are neither appreciating nor consuming the milk and/or any other dairy products thus never acknowledge the benefit and/or commercial aspects of the milk products.

Inseminated cow with Beneficiary

4.5 Non availability of Market Linkage:

The Non availability of Milk Market is the major factor for Failure of Artificial Insemination Scheme

NIMAPARA	CHHENDIPADA	GUMMA
1. The milk/ milk products produced in the block gets a good market linkage due to the presence of the market players like Milk Moo, Milk Mantra (Kamadhenu), OMFED etc. **2.** The block also being proximity to Bhubaneswar and Cuttack, the milk producer bring the produce to the urban areas for a better price **3.** The milk produced also being converted to various sweets which fetch better price and good demand attracting the urban market. **4.** Thus the pricing and Market scenario of milk provides an opportunity amongst the milk producers/	**1.** In Chhendipada, it is observed that due to existing milk route, some people are interested in producing milk and a cold storage unit was running in Chendipada but now the Milk route is discontinued and the cold storage is in dormant stage. **2.** The capacity of the cold storage is 600 liter, and presently the milk production in Chendipada is also more than 600 liter. Thus the milk producers are selling the milk in the local market with price below the market price. **3.** Thus reopening of the cold storage would provide an opportunity for the farmers in providing market linkage of the milk produce.	**1.** Due to low consumer and/or buyer for milk and milk products at local area, there is lack of interest amongst the farmers for dairy farming. **2.** Scientifically it has been ascertained that a cross breed would yield an average of 8-10 liters of milk per day for an average period of 300-305 days thus requires a regular market for selling. **3.** As milk and its products being perishable in nature; thus market linkage for dispatching the milk at the earliest is necessary. **4.** It has been observed that Gajapati has various Milk Route as developed by OMFED for market linkage to the milk

farmers/ traders which in turn construct desire amongst the farmers for Artificial Insemination.	**4.** The low market price of the milk and milk Product also discourages the farmers for dairy farming in Chendipada Block.	producers of the locality; however the same is not so rampant in Gumma Block. **5.** Only 4-5 % of the areas of the Gumma Block are linked with the Milk Route of OMFED for market linkage, this could be due to the below of the Economy of Scale of Production of Milk. **6.** The following are the Gram Panchayats linked to the Milk Route of OMFED in Gumma block {Jhami—Paricha—Kurlonda}

4.6 Socio Economic Status of the Reason

NIMAPARA	CHHENDIPADA	GUMMA
1. In Nimapara due to Awareness ,Personal interest and market linkage people are more interested in Diary Farming. 2. Most of the people creating their Livelihood in Producing Milk and milk made Product.	1. Chhendipada is an industrial block in Angul district where the resident of the district are engaged in business related activity with either upstream/downstream linkage to the industry and/ or industrial worker. 2. They earning from the business is appreciating and well paid compared to the dairy farming which discourages the farmers towards engaging in the dairy business for their livelihood. 3. The earning in the Dairy farming is also not so lucrative when the high labor intensive job	1. Gumma is a socioeconomically backward Block as compared to Chhendipada and Nimapara. 2. Due to low literacy and unawareness most of the people have no information about Govt. Scheme 3. It has been observed that, no organized /schematic /planned sensitization and/or awareness were organized by the Dept. in disseminating the benefits of AI; however the officials make effort in making the cow breeders aware of the benefits.

5.0 BENEFICIARY RESPONSE OBSERVATION:

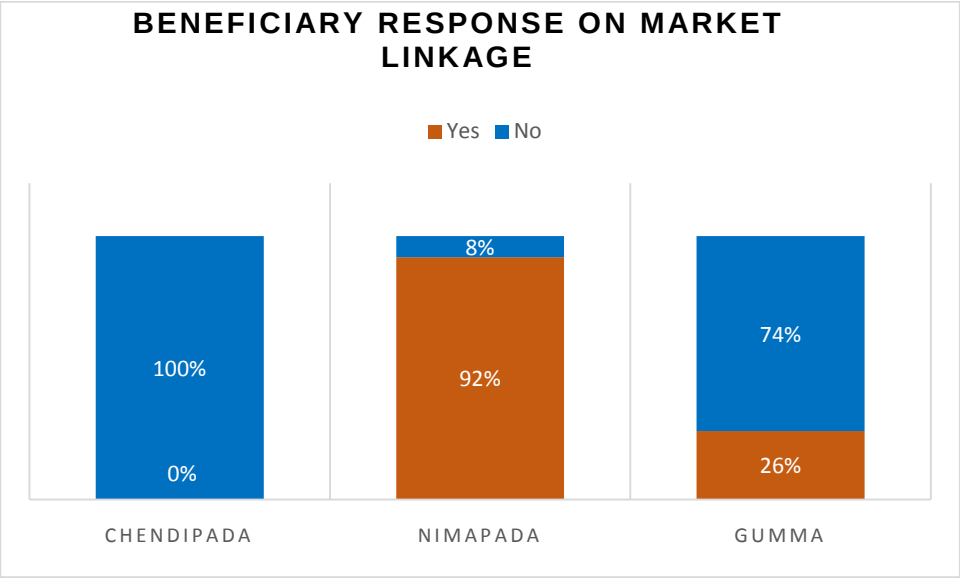
5.1 Availability of Milk Route:

- From the field study, we observe that in the beneficiary point of view that Marketing of Milk is a major factor in Dairy Farming. The main aim of AI is to produce high quality milking cow, if a farmer adopt AI for his livelihood and produce milk having no market linkage for the sell then the entire spirit behind the AI gets lost. Thus the Marketing of Milk has become a major/ crucial Factor in AI.

5.1.1 Market Linkage of Milk in Three Respective Districts:

Nimapara	Chhendipada	Gumma
1. In Nimapara the milk production is much more than Chhendipada and Gumma Blocks.Due to a better market linkage, the percentage of milk and milk product production is more. And people are more interest in Farming of AI cow. 2. There is a positive response amongst the farmers in the Nimapada district, as 92 % of the farmers responded for having a market linkage for the milk they produce.	1.From our field study in Chhendipada block, it's understood that Majority of the farmers have the concern that due to unavailability of marketing they have lost interest in AI. 2. For a 4-6 member family, an average of 1-2 litersof milk is sufficient for domestic consumption. AI cow produce 8-10 liters of milk a day, but the expenditure for AI cow is much more than an indigenous cow. 3. With no better pricing scenario of the local market, this does not provide opportunity amongst the farmers for rearing the AI cows. 4. Thus with Govt. intervention if the milk route can be reinstated and/other cold storage be reopened, there will be interest amongst the milk producers towards the AI and new farmers could have been attached to the AI initiatives. 5. In Chendipada, 100 % of the farmers responded far having no market linkage for the milk and milk products which is a major factor for the success and/or failure of Ai in the block.	1.The marketing of Milk and Milk Products in Gumma is similar with Chhendipada. In Gumma very negligible part is under milk route which is discussed in 3.5.1 of the report. Due to unavailability of market linkage the milk Production and AI is much less than chhendipada and Nimapara. 2. Around 74 % of the respondents in Gumma Block have responded that the market linkages for the milk products are not available which a major determinant is for the AI in the block.

Figure 3: Beneficiary response on market linkage

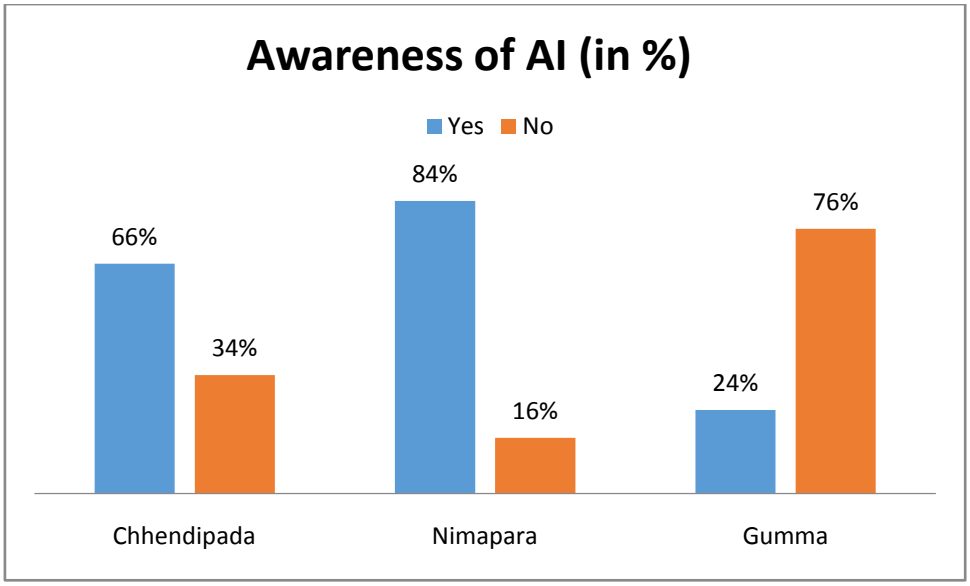


Source : Primary Data-Through FGD/Interview

5.2 Awareness on AI at Three (Chhendipada, Nimapara and Gumma) District

Nimapara	Chhendipada	Gumma
1. In Nimapara the Cattle population is much more than Chhendipada and Gumma, and due to a better market route and awareness the AI is 100% Success in Nimapara.	**1.** In Chhendipada most of the farmers are aware about AI Facility. 2. Due to awareness camp and Success case of AI more people know the AI facility but due to unavailability of Market route AI is not 100% Success in Chhendipada.	1.In Gumma block due to tribal region and lack of awareness Program, most of farmers are not know about Artificial insemination. 2. Overall 66% of famers in Chhendipada block, 84% in Nimapara block and 24% in Gumma block are Aware of artificial insemination program.

Figure 4:Awareness of AI (in %)



Source : Primary Data-Through FGD/Interview

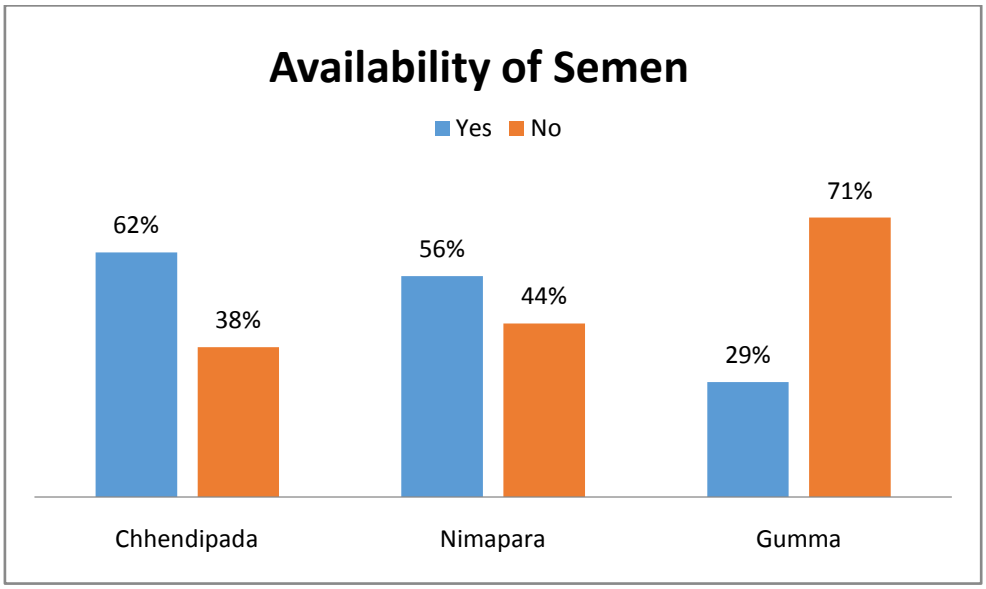
5.3 Availability of SEMEN:

In AI the semen takes a vital role, in AI the semen gets injected into an indigenous cow. The semen must be injected to a cow within 48 hour of the cow under heat, so the timely availability of semen is most crucial.

Seamen Tank

Nimapara	Chhendipada	Gumma
1. In Puri the AI percentage is more as Compared to Chhendipada and Gumma, due to number of agencies (like Milk moo, Milk mantra, OMFED etc.) The block also has areas which are easily accessible. 2.There is also sometime shortage of Nitrogen(N in semen tank), becomes a major problem for the veterinary officers to carry out the AI in time.If the Semen Tank is maintained properly and the nitrogen is available in the semen tank, then the AI progress would be more.	**1.** In Chhendipada due to unavailability of Gomitra in all GP, the identification of heat time of a cow is difficult. And in some cases, the Beneficiary informs the LI and VS about the cow under heat, but they could not reach to them within 48 hours. 2. Due to delay in availability of semen the AI affected. Thus appointing Gomitra, in every village/ GP Label and provide them semen tank(where semen stored safely), and trained them on AI, then the penetration of AI in the village level would be more easy. 62% of the respondents have opined that the Semen is made available within 48 hours.	1. Due to unawareness, non-milky consumer and hilly reason and unavailability of semen the AI percentage is too low in Gumma as compared Chhendipada and Nimapara. 2.If the semen is available on time and aware is created amongst the farmers, the AI percentage could improve.

Figure 5 : Availability of Semen

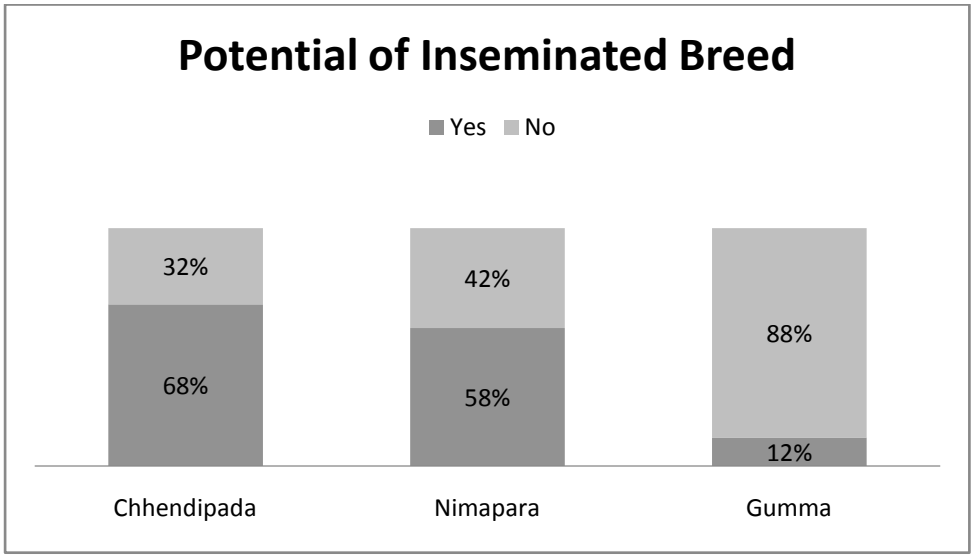


Source : Primary Data-Through FGD/Interview

5.4 Potential of Inseminated/ Cross Breed:

From field visit and discussion with the beneficiary, its understood that, the cross breed have more potential in terms of milk production, vigor etc. However, the same does not fetch similar result for bullock because in the Farmer point of view the cross breed bullock are not efficient like the Indigenous bullock.

Figure 6 : Potential of Inseminated Breed

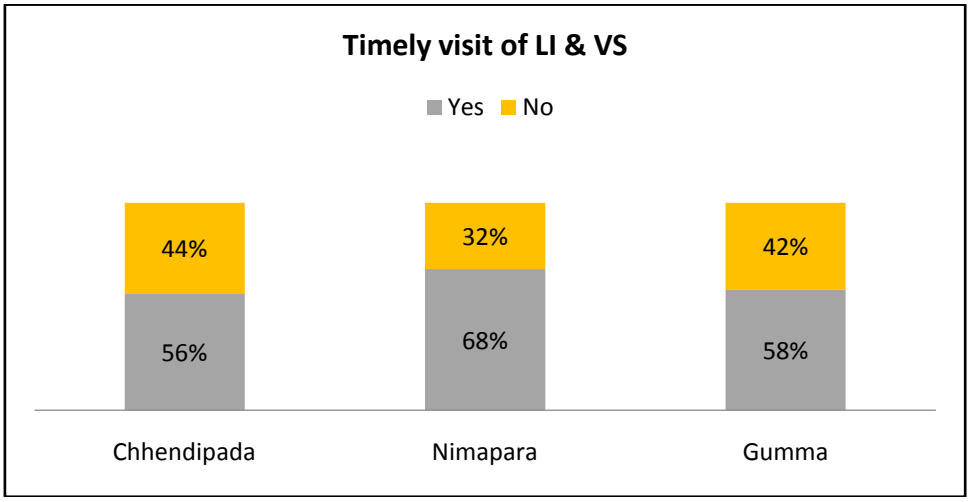


Source : Primary Data-Through FGD/Interview

5.5 Timely Visits of LI and VS

Nimapara	Chhendipada	Gumma
1. From beneficiary point of View the LI VS are visited frequently and provide the all Veterinary Service on time. **2.** In Nimapara out of 100% ,68% People are Satisfied with the Service time.	**1.** From beneficiary point of View the LI VS are visited frequently and provide the all Veterinary Service on time. **2.** In Chhendipada out of 100% 56% People are Satisfied with the Service time.	1. In Gumma most of the beneficiary are not Aware about Veterinary service . 2. In Gumma out of 100% 58% People are Satisfied with the Service time.

Figure 7: Timely visit of LI and VS



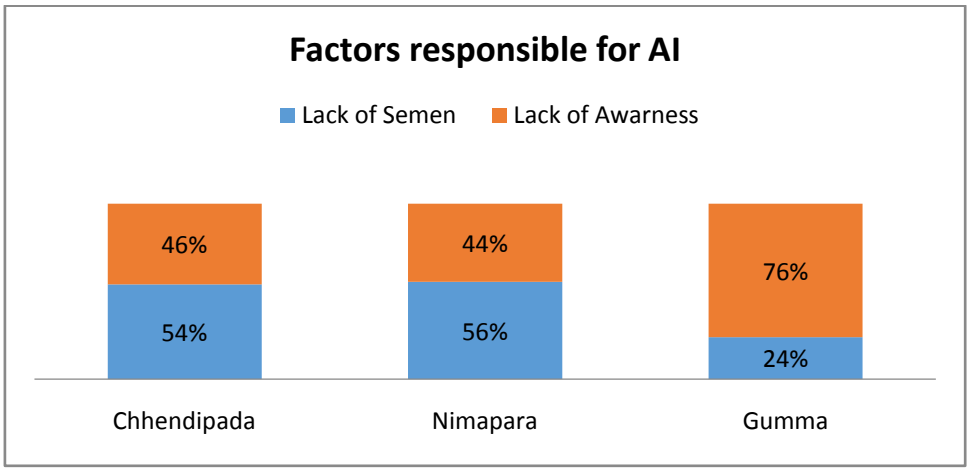
Source : Primary Data-Through FGD/Interview

5.6 Factors responsible for AI

Lack of awareness is the also the reason for the success/failure of AI. 46%, of the famers in Chhendipada block, 44% of the farmers in Nimapara block and 76% of the farmers of Gumma block were not aware of the Artificial Insemination programme and its benefit.

Nimapara	**Chhendipada**	**Gumma**
1. In Nimapara Unavailability of semen is the first difficulty faced by farmer in AI. 2.Due to unavailable of Semen tank the beneficiary are not get the semen on time. 3. 56% of the farmers of Nimapara block have responded that unavailability of semen is the prime reason for the failure of AI.	1. In Chhendipada due to unavailable of milk route most of the beneficiary are not accept the AI service and timely un available of semen is the another factor for failure of AI. 2. 54% of the farmers of Chhendipada block have responded that unavailability of semen is the prime reason for the failure of AI.	1.In Gumma insufficient number of Gomitra and unavailable of semen lack of awareness about AI are the factor for Failure of AI. 2. 24% of the farmers of Gumma block have responded that unavailability of semen is the prime reason for the failure of AI.

Figure 8: Factors Responsible For AI

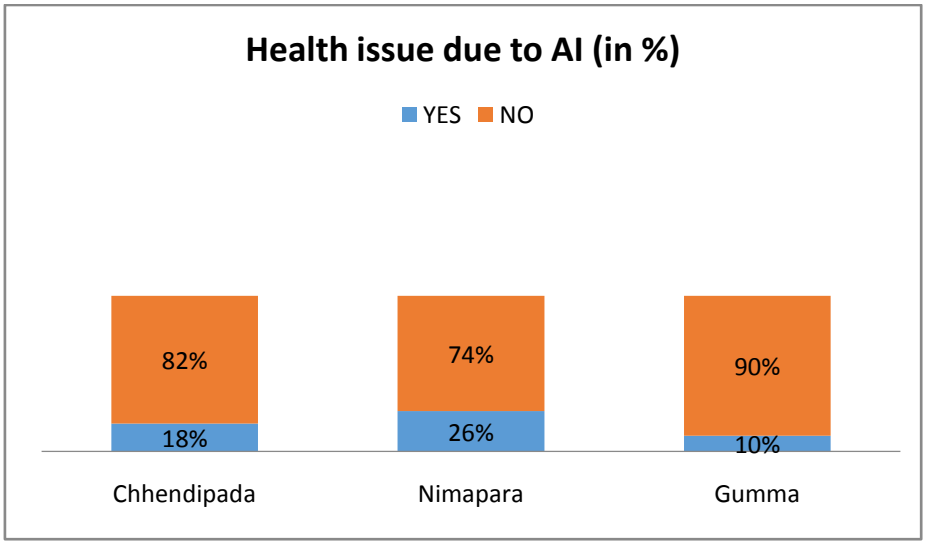


Source: Primary Data-Through FGD/Interview

5.7 Health issue in Cattle due to AI

Nimapara	Chendipada	Gumma
From Beneficiary point of view due to Artificial Insemination, in Nimapara is 26% Farmer marked some Physical changes in their cattle these changes are not Major.	From Beneficiary point of view due to Artificial Insemination, In Chhendipada is 18% Farmer marked some Physical changes in their cattle these changes are not Major.	From Beneficiary point of view due to Artificial Insemination in Gumma is 10% Farmer marked some Physical changes in their cattle these changes are not Major.

Figure 9 : Health issue in cattle due to AI



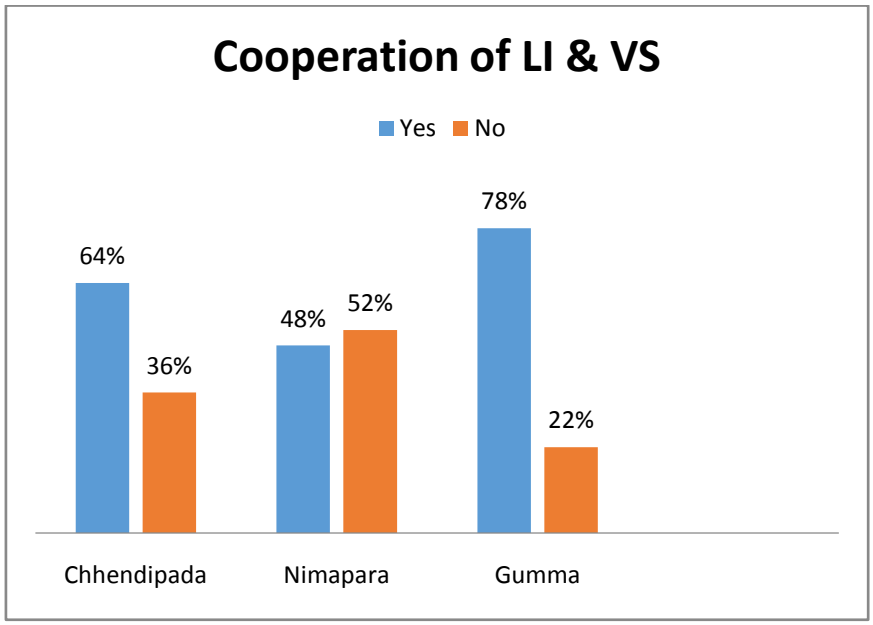
Source : Primary Data-Through FGD/Interview

5.8 Cooperation of LI and VS

Farmers reveal that cooperation and support given from officials to farmer are 64% for Chendipada block,48% for Nimapara block and 78%for Gumma block.

Nimapara	Chendipada	Gumma
1.In Nimapara ,From beneficiary Point of view 52% of Beneficiary are not satisfied with the service provided by the LI(Livestock Inspector) and VS(Veterinary Surgeon). 2.Most of the beneficiary are complained that the LI and VS are not respond at time of Cattle Illness.	1.In Chendipada ,From beneficiary Point of view 36% of Beneficiary are not satisfied with the service provided by the LI(Livestock Inspector) and VS(Veterinary Surgeon). 2.Most of the beneficiary have Concerned that the LI and VS are not Visited Frequently	1.In Gumma ,From beneficiary Point of view 22% of Beneficiary are not satisfied with the service provided by the LI(Livestock Inspector) and VS(Veterinary Surgeon). 2.Most of the beneficiary are No Knowledge about the LI and VS.

Figure 10: Cooperation of LI and VS



6.0 CASE STUDY:

6.1 Success Story in Angul:

Success story of Sri TrilochanSahoo

District	Angul
Sub Division	Angul
Block	Chhendipada
Veterinary Division (VD)	Chhendipada
Gram Panchayat	Handiguda
Livestock Aid Centre (LAC)	Chhendipada
Name of the Veterinary Surgeon (VS)	BikashCh. Behera
Name of the activity	Dairy Farming
Location of the Business	Handiguda
Name of the farmer	Trilochan Sahoo

(A) Process:

Trilochan has 6 dependents in his family. Since from 1998 Mr. Trilochan has Indigenous cows where the milk yield was 2-3 liters per Cow accounts to a total of 8-12 liters a day. The cost of the Cow milk is Rs. 15 per liter which gives rise to Rs. 120 -180 a day.

Since last 6 years Mr. Trilochan has adopted the artificial insemination of the cattle and has presently 4 jersey cows which are under lactation stage. Presently each jersey cow yield 8-10 liters a day resulting to 35-40 liters a day. He sells the milk in the nearby Market at Chendipada; he also prepares Ghee, Curd which is for his domestic consumption. He also has 5 calves of which 3 are jersey (Cross Breed) which would add to his livelihood in 2-3 years. Thus with artificial insemination the milk yield has doubled with an income of Rs. 20-30,000 a year per cattle. He has also gone for the cattle insurance for all his cattle. His annual income is Rs. 1.2-1.5, Lacs from the Dairy and Rs 40-50, 000 from the agriculture with a land size of 4-5 acres. Thus his annual income is Rs.1.6-1.9 lacs a year with domestic support from his family members.

Sh. Trilochan Sahoo, Dairy Farmer, Handiguda, Angul

Fodder Cultivation

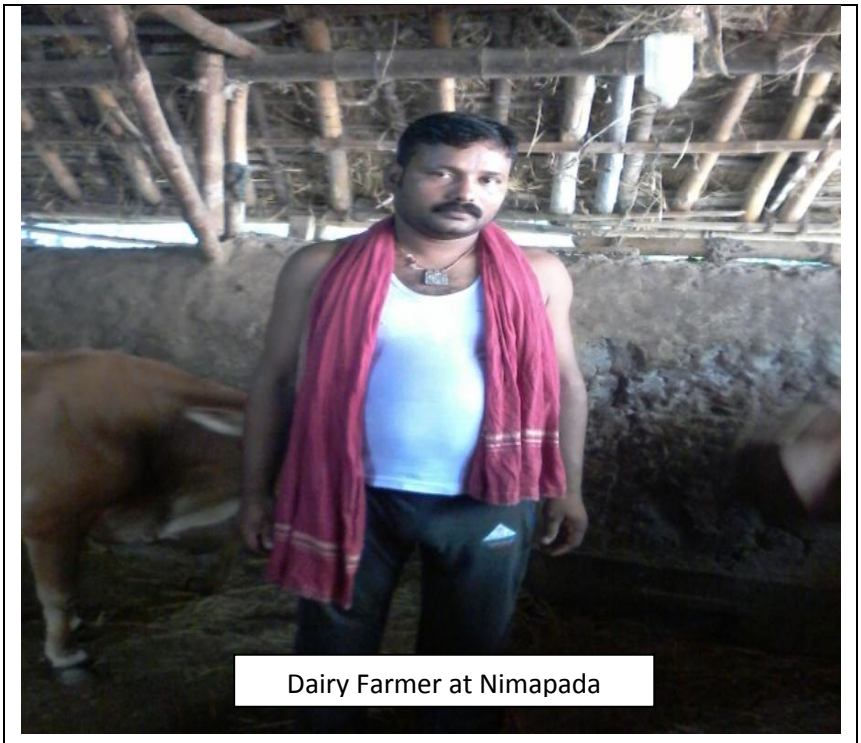
5.2 Success story in PURI:

Success story of Sri Bhubana Nanda Behera

District	Puri
Sub Division	Nimapara
Block	Nimapara
VD	Nimapara
Gram Panchayat	Handiguda
LAC	Nimapara
Name of the Vet	Rajesh Ch. Panigrahi
Name of the activity	Dairy Farming
Place	Dhanua
Name of the farmer	Bhubana Nanda Behera

Bhubana Nanda has 8 dependents in his family. 8 years back Mr. Bhubana Nanda has 5 Indigenous cows where the milk yield was 2-3 liters per Cow accounts to a total of 10-15 liters a day. The cost of the Cow milk is Rs. 15-20 per liter which gives rise to Rs. 20-30 a day.

Since last 5 years Mr. Bhubana Nanda has adopted the artificial insemination of the cattle and has presently 6 jersey cows which are under lactation stage. Presently each jersey cow yield 10-12 liters a day resulting to 60-70 liters a day. He sells the milk to OMFED at Nimapara; he also prepares Ghee, Curd which is for his domestic consumption. He also has 4 calves of which 3 are jersey (Cross Breed) which would add to his livelihood in 2-3 years. Thus with artificial insemination the milk yield has doubled with an income of Rs. 30-40,000 a year per cattle. He has also gone for the cattle insurance for all his cattle. His annual income is Rs1.8-2.0, Lacs from the Dairy and Rs 40-50, 000 from the agriculture with a land size of 4-5 acres. Thus his annual income is Rs.2.2-2.4 lacs a year with domestic support from his family members.

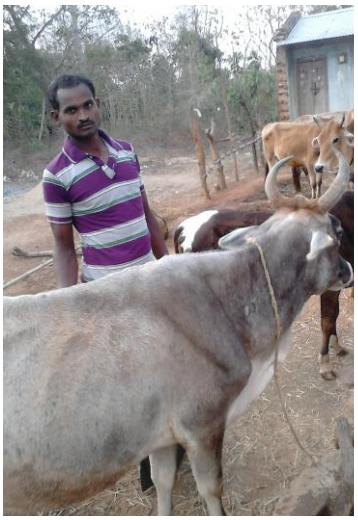


Dairy Farmer at Nimapada

5.3 Success Story of Gumma Block

Name: Sanmukha Rao

J. Sanmukha Rao aged 30 years, from the Padmapur Village, Gumma Block, Gajapati district. He has 3 dependents in his family. 6 years back Mr. Rao has 4 buffalos where the milk yield was 2-3 liters per buffalo accounts to a total of 8-12 liters a day. The cost of the buffalo milk is Rs. 12 per liter which gives rise to Rs. 100 -150 a day.



Since last 6 years Mr. Rao has adopted the artificial insemination of the cattle and has presently 3 jersey cows which are under lactation stage. Presently each jersey cow yield 6 liters a day resulting to 18-20 liters a day. He sells the milk in the nearby Dairy Society at Kurlunda; he also prepares Ghee, Curd which is for his domestic consumption. He also has 5 calves of which 3 are jersey (Cross Breed) which would add to his livelihood in 2-3 years. Thus with artificial insemination the milk yield has doubled with an income of Rs. 25-30,000 a year per cattle. He has also gone for the cattle insurance for all his cattle. His annual income is Rs. 70-80, 000 from the Dairy and Rs 40-50, 000 from the agriculture with a land size of 4-5 acres. Thus his annual income is Rs. 1-1.3 lakhs a year with domestic support from his family members.

7.0 SWOT ANALYSIS:

In this study an attempt has been made to study the Strength, Weakness, Opportunities and Threat of the Cattle Insurance Programme under taken by the Directorate of Animal Husbandry and Veterinary Service in the state with an idea to take policy decisions to strengthen the system and also to convert weakness to opportunities. While executing the programme, proper watch to be given on the factors concerning for success of the Cattle Insurance in the State.

7.1 Strength

- AI practices reinforce the multi-functional activities of Livelihood.
- The Diary Farming is an important and dynamic indigenous sector which contributes significantly to the economic well-being of these districts.
- The sector has ample scope to enhance the production to meet the domestic market demands, create employment and income generating opportunities for the rural poor and enhance their food and livelihood security.

7.2 Weakness

- Less awareness about AI.
- Unavailability of semen
- Artificial Insemination at the district. and a hilly terrain with majority of the tribal base the breed able cattle population status is very low
- Lack of Presence of Gomitra in village.
- Lack of mechanism for identifying the cow under heat and/ or keeping track of the exact estrous cycle/ date for insemination in hilly areas.
- Lack of effective milk route.
- Decline in cattle based employment and over-reliance on other sector for rural employment.
- Physical changes marked by farmers in their cattle are not substantial.

7.3 Opportunities

- The milk/ milk products produced gets a good market linkage due to the presence of the market players like Milk Moo, Milk Mantra, OMFED etc.
- Implementation of good IA practices which could be more productive milk producer bring the produce to the urban areas for a better price
- There are considerable opportunities for rural inhabitants to generate additional income from Animal husbandry sector and other similar types of activities.

- The milk produced also being converted to various sweets which fetch better price and good demand attracting the urban market.

7.4 Threat

- Loss of markets due to absence The majority of habitants are neither appreciating nor consuming the milk and/or any other dairy products thus never acknowledge the benefit and/or commercial aspects of the milk products
- The low market price of the milk produce discourages the farmers for dairy farming.
- Earning from the business is appreciating and well paid compared to the dairy farming which discourages the farmers towards engaging in the dairy business for their livelihood.

8.0 POLICY OPTION:

1. Gumma block of Gajapati district is having more hilly areas and is concentrated with tribal population. The cattle's are not stall-fed. They move freely for grazing in the hilly/forest areas during the entire year excluding crop growing period. Timely identification of cows who are under heat becomes difficult. A proper policy is to be developed to identify such cows in time for artificial insemination. In such case a tribal person in the same locality well versed with the tribal culture and language may be identified for a cluster consisting of 2-3 villages in hills. They can be designated as "Tribal Gomitra" and can be trained on identification of cows under heat. (**Refer4.3**)

2. For 3-4 clusters, a semen mini bank may be created where a LSI, trained on artificial insemination may be kept in charge with all instruments required for AI. He must coordinate the man (Tribal Gomitra) in charge of cluster of villages in respect of cows under heat. The LSI may act immediately for AI of such cases. This will improve the rate of success on artificial insemination.(**Refer5.3**)

3. Majority of the household in Gumma block purchase poultry bird and small ruminates like sheep and goats and also purchase cows and buffalos by using their own saving. Since these purchases are not credit linked, attention has not been given properly for insurance. In such case, a special package may be provided in the tribal concentrated hilly areas for compulsory insurance to the cattle having artificial inseminated. Besides these cattle's may be provided with subsidized feed with proper medical attention to attract poor tribal livestock farmer.(**Refer 4.6**)

4. Awareness may be created among poor tribal livestock farmers on the benefit of consuming cow milk and economic benefit of cross breed cows in terms of high milk yield to encourage AI in their locality. **(From field Observation)**

5. Practically the market route for procurement of milk by OMFED/other agency is very poor. These market routes may be extended to the areas of tribal dominated livestock farmers, particularly to procure milk from among artificial inseminated cows.(**Refer 4.5**)

6. Since few of blocks are hilly , terraced and inaccessible, cattle's are being moved freely, some selected such area may be provided with high quality bulls along with its maintenance as an alternative where maintaining mini semen bank is not possible.(**Refer 4.2**)

7. Similarly for districts like Angul, market linkage is the key concern for improving the penetration of AI. The dept. also may organize regular sensitization programme for identification of new beneficiary and keep the farmers interest intact with the Dairy farming.(**Refer5.1**)

8. Necessary infrastructure may also be provided with the LAC for providing support to the cattle during illness. Mobile Veterinary Unit may also be strengthened. **(From field Observation).**

9.0 FINDINGS AND POLICY OPTION:

	Findings and observations	Policy Option
1.	**Awareness on AI**	
	➢ Due to lack of awareness Program In tribal region , most of farmers are not know about Artificial insemination	➢ Awareness may be created among poor tribal livestock farmers on the benefit of consuming cow milk and economic benefit of cross breed cows in terms of high milk yield to encourage AI in their locality. (From field Observation)
2.	**Availability of Milk Route:**	
	➢ Practically the market route for procurement of milk by OMFED/other agency is very poor .Majority of the farmers have concern that due to unavailability of marketing they have lost interest in AI. (Para 3.5.1) ➢ Due to dormant Cold store in some places, Farmers are facing problem for selling milk or milk made product and they are bound to sell in local market at lesser market price so they are losing their interest in AI.	➢ Market routes may be extended to the areas of tribal dominated livestock farmers, particularly to procure milk from among artificial inseminated cows.(Refer 3.5). ➢ Revival of the cold storage would provide an opportunity for selling their milk and milk Product with enhanceing their interest towards AI.
3.	**Availability of Services**	
	➢ In certain cases shortage of Nitrogen (N in semen tank), becomes a major problem for the veterinary officers to carry out the AI in time. ➢ Due to unavailability of Gomitra in all GP, the identification of heat time of a cow is difficult. And in some cases, the Beneficiary informs the LI and VS about the cow under heat, but they could not reach to them within 48 hours. ➢ Due to delay in availability of semen the AI affected. Most of the respondents have opined that the Semen is made available within 48 hours.	➢ If the Semen Tank is maintained properly and the nitrogen is available in the semen tank, then the AI progress would be more. ➢ For 3-4 clusters, a semen mini bank may be created where a LSI, trained on artificial insemination may be kept in charge with all instruments required for AI. He must coordinate the man (Tribal Gomitra) in charge of cluster of villages in respect of cows under heat. The LSI may act immediately for AI of such cases. This will improve the rate of success on artificial insemination.(Refer 4.3).

	➢ Presently Gomitras are not having any fixed remuneration, they are paid incentive only with respect of Number of calf born. Due to this the motivation level of Gomitra is low.	➢ Gomitras should be engaged not only for AI Purpose but also for Vaccination with providing some fixed Remuneration in Monthly basic ,then they will be motivated towards Veterinary Service.
4.	**Factors responsible for AI**	
4A	➢ Insufficient number of Gomitra and due to unavailability of Semen tank the beneficiary are not getting the semen on time that is one of the reason for reason for the failure of AI.	➢ A proper policy is to be developed to identify such cows in time for artificial insemination. In such case a tribal person in the same locality well versed with the tribal culture and language may be identified for a cluster consisting of 2-3 villages in hills. They can be designated as “Tribal Gomitra” . The capacity building programmes should be done for Gomitra for facilitation of Artificial Insemination. (Refer 3.3).
4B	➢ In few areas household purchase poultry bird , small ruminates (sheep , goats) and also purchase cows and buffalos by using their own saving. Since these purchases are not credit linked, attention has not been given properly for insurance.	➢ In such case, a special package may be provided in the tribal concentrated hilly areas for compulsory insurance to the cattle having artificial inseminated. Besides these cattle’s may be provided with subsidized feed with proper medical attention to attract poor tribal livestock farmer.(Refer 3.6)
4C	➢ Since few of blocks are hilly , terraced and inaccessible, cattle’s are being moved freely	➢ Those areas may be provided with high quality bulls along with its maintenance as an alternative where maintaining mini semen bank is not possible.(Refer 3.2)
5.	**Health issue in Cattle due to AI**	
	➢ Due to Artificial Insemination, Farmer marked some Physical changes in their cattle , although these changes are not major.	➢ Necessary infrastructure should be provided with the LAC for providing support to the cattle during illness. Mobile Veterinary Unit may also be strengthened. (From field Observation)
6.	**Cooperation of LI and VS**	
	➢ In certain cases Beneficiary are not satisfied with the service provided by the LI(Livestock Inspector) and VS(Veterinary Surgeon). ➢ Most of the beneficiary are complained that the LI and VS are not respond at time of Cattle Illness.	➢ The department also may organize regular sensitization programme for identification of new beneficiary and keep the farmers interest intact with the Dairy farming.(Refer 4.1)