



**Accelerated Breed Improvement Programme -Using sex sorted semen for getting assured pregnancy**

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## **Accelerated Breed Improvement Programme -Using sex sorted semen for getting assured pregnancy**

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## **Accelerated Breed Improvement Programme -Using sex sorted semen for getting assured pregnancy**

### **1. Introduction**

1.1 With mechanisation of Agriculture, utility of male bovines have been reduced. Farmers are not willing to maintain Bullocks for agriculture or any other draft work. Hence, male calves born at farmer house have become a liability. Farmers often let the male calves loose which are resulting into increase in stray animal population. Only female calves can be produced (with more than 90% accuracy) by use of latest technology like Sex Sorted Semen in AI program. Use of sex sorted semen will be game changer for the farmers as only female calves are produced with 90% accuracy against 50:50 male to female sex ratio with normal semen.

1.2 Extensive use will increase the number of female animals thereby increasing income of farmers through sale of female or through sale of milk. Use of sex sorted semen will also reduce male cattle population thereby limiting stray cattle population in the country.

### **2. Objectives:**

- 2.1 To promote use of sex sorted semen for production of female calves with 90% accuracy
- 2.2 To enhancing milk production and farmers income through production of female calves.
- 2.3 Increased availability of female calves of high genetic makeup for farmers and entrepreneurs interested in taking up dairy farming.
- 2.4 To make sex sorted semen technology affordable to farmers thereby increasing acceptability of artificial insemination with use of sex sorted semen.
- 2.5 To Create Visible demand of sex sorted semen in the country thereby attracting private entrepreneurs in production of sex sorted semen.

### **3. Action Plan:**

#### **Selection of semen production facility for supply of sex sorted semen:**

3.1 F.O.R. rates for supply of quality sex sorted semen to Implementing Agencies/ AI technicians by sex sorted semen production facility will be discovered by DAHD through online tendering process in a transparent manner.

3.2 All semen stations having facility for sex sorted semen production may participate in the tender. Only lowest discovered rate will be fixed by DAHD for supply of sex sorted semen. Eligible semen stations (meeting all standards and specifications) may supply sex sorted semen doses of the breeds maintained at semen stations at the lowest rate discovered by DAHD.

3.3 Implementing Agencies (IA) will be allowed to purchase sex sorted semen doses only from the semen stations identified by DAHD (meeting all eligibility criteria) and on the discovered rates.

**Payment for sex sorted semen doses:**

3.4 **60% of the total** Payment will be made by IA to sex sorted semen production facility at the time of receipt of sex sorted semen doses as per specification. IA may also test semen doses for sperm motility quality before making payment.

3.5 **15% of the total** payment shall be made after quality testing of sex sorted semen straws for sperm concentration which shall not be less than 2.1 million and post thaw motility shall not be less than 1.3 million progressively motile sperms/ straw.

3.6 Additional 1% of the straw shall be made available by semen production facility for testing may be at the rate of 1 straw per batch of sex sorted semen doses.

3.7 **10% of the total** payment will be made after experts available at sex sorted semen production facility complete training/orientation programme for AI technicians before AI technicians are allowed to undertake AI with sex sorted semen.

3.5 **10% of the total payment** will be paid after verification of conception rate in first 2000 AIs with sex sorted semen. Conception rate shall not be less than 30% in any case.

3.6 **5% of the balance payment will be made** after verification of female calves born under the programme. In any case female to male calf sex ratio shall not be less than 90:10.

**Implementing Agency using its own AI network**

3.8 IA will charge the farmers for getting assured pregnancy through use of quality sex sorted semen. *new?*

3.9 IA will be allowed to use only sex sorted semen produced by semen stations (meeting all eligibility criteria) identified by DAHD and only on rates discovered by DAHD.

3.10 Implementing agency may identify service provider for getting assured pregnancy by using of sex sorted semen through online tendering process in a transparent manner.

**Quality parameters of sex sorted semen**



3.11 Semen production facility will supply sex sorted semen with 90% sex accuracy for birth of female calves.

3.12 Semen production facility will be allowed to supply only semen obtained from high genetic merit bulls.

3.12.1 For exotic bulls: Bulls shall be progeny tested/ genomic tested with positive EBV/GEV and dams lactation yield (ME) shall be above 10,000 kg in case of HF bulls and 7,000 kg in case of Jersey bulls

3.12.2 For indigenous bulls (Gir, Sahiwal, Red Sindhi and Tharparkar): dams lactation yield shall be above 4000 kg.

3.12.3 For buffalo bulls: Bulls shall be progeny tested/genomic tested with positive EBV/ GEV in case of Murrah, and Mehsana and dams lactation yield shall be above 3500 kgs. In case of Nili Ravi and Jaffarabadi dams lactation yield shall be above 3500 kgs.

3.13 Sperm concentration in sorted semen straws shall not be less than 2.1 million and post thaw motility shall not be less than 1.3 million progressively motile sperms/ straw.

3.14 Semen straws shall be produced as per MSP and SOPs formulated by the DAHD and semen production facility shall be graded as A by Central Monitoring Unit (CMU) of DAHD.

#### **AI technicians**

3.15 IA shall select best AI technicians operating in the area for attaining higher conception rates.

3.16 IA will organize training or orientation programme for selected AI technicians by involving experts of sex sorted semen production facility for higher conception of rates.

3.17 AI technicians participating in implementation of the programme shall be registered with Implementing Agency and their profiles shall be uploaded on INAPH data base and linked to e-Gopala App.

3.18 Details of AI technicians engaged in implementation of the programme shall be made available to DAHO and local veterinary hospital for effective monitoring of the project activities.

3.19 AI technicians engaged in implementation of the programme will be supplied

only with sex sorted semen. Selected AI technicians shall not be allowed to perform AI with conventional semen/unsexed semen.

3.20 Inventory of the sex sorted semen straws supplied to AI technician will be maintained by IA along with batch number and number of doses supplied.

3.21 AI technician will take photo of empty straw through his mobile after performing AI and hand over empty straw to concerned farmer. It is the responsibility of AI technician for uploading all details of AI on INAPH data base along with photo of empty straw.

#### **Incentives to AI technicians**

3.22 Provision of incentives to private AI technicians under the project will be at the rate of Rs 100 per AI with sex sorted semen and additional incentives to AI technicians attaining higher conception rates Rs 150 for conception at first AI and Rs 50 for attaining conception at 2<sup>nd</sup> AI.

3.23 Incentives will be made available on the basis of verification of the data uploaded by AI technicians on INAPH data base and photo of empty straw.

#### **Selection of Beneficiaries:**

3.24 Scheme will be available to all the farmers interested in taking up assured pregnancy with sex sorted semen.

3.25 Heifers and cows in 1<sup>st</sup> to 3<sup>rd</sup> lactation available with the farmers may be selected and covered under the programme for getting assured pregnancy through sex sorted semen. Animals above 3<sup>rd</sup> lactation may not be covered under the programme as in this category of animals conception rate is substantially low.

3.26 Beneficiary will register with Implementing Agency (SLDB/Milk Federation /DAH/ NDDDB (NDS)) to take benefit of the scheme.

#### **Support to farmers available under the project**

3.27 Support will be made available under the programme to farmers for getting assured pregnancy @ Rs 750 per pregnancy or 50% of total cost discovered per pregnancy (on average 3 doses per pregnancy) using sorted semen whichever is lesser upto 2nd year of the project and from 3rd year onwards subsidy will be reduced to Rs 400 per pregnancy or 50% of total cost discovered per pregnancy using sorted semen whichever is lesser, as cost of sex sorted semen will be reduced substantially and balance amount of fund for getting assured pregnancy will be met by the participating farmer.

## **Parentage testing**

**3.28** At least 1% of the calves born under the programme will be taken up for parentage testing by implementing agency on random basis. Parentage testing will be arranged by NDDB.

## **4. Targets of the project:**

4.1 Under the programme it is proposed that Sex Sorted semen doses will be used for getting 51 lakh assured pregnancies, leading to birth of 45 lakh female calves.

4.2 Concerned Milk Union/ State Animal Husbandry Department will be requested to take responsibility to provide veterinary aid to the calves born under the programme.

## **5. Implementation Mechanism**

### **Area of Operation**

5.1 There are 17 states in the country which house around 96 % of Bovine Population (Details provided at **Annexure I**). These states will be the targeted states for the large scale intervention of on use of sex sorted semen for getting assured pregnancy. These 17 states are those states which have more than 50 lakh bovine populations and are major milk producing state. After successful adoption in these states, the scheme will be extended to remaining states and Union territories.

### **Contract with farmers for getting assured pregnancy**

5.2 Implementing Agency (SLDB/ DAH/Milk Federation (MU)/ NDDB (NDS)) will enter into contract with farmer for getting assured pregnancy using sex sorted semen and farmer will deposit his share of Rs 750 (during first two years of the project) and Rs 400 from 3<sup>rd</sup> year onward of the project.

5.3 Farmers will be advised to register Heifers and cows in 1<sup>st</sup> to 3<sup>rd</sup> lactation for covering under the programme. Animals to be covered under the programme shall be assessed by AI technician for fertility, reproductive disorders etc. Only animals with higher fertility shall be covered under the programme.

5.4 If successful pregnancy is not delivered even after 3<sup>rd</sup> AI in a cow/buffalo then entire amount will be returned to concerned farmer by IA. If male calf is born then, Rs. 500 will be returned to the concerned farmer.

5.5 AI technician shall deliver Artificial insemination service at the farmer's



doorstep following MSP and SOP prescribed by experts of sex sorted semen production facility.

5.6 In any case female to male calves' ratio shall not be less than 90:10. If male calves ratio is exceeding in that case IA will not further purchase sex sorted semen doses from concerned sex sorted semen production facility and return all the doses supplied by the concerned facility available under storage with IA.

5.7 All the information that is starting from registration of animal to calving, uploading photograph of empty straw of sex sorted semen, ear tagging of calf and parentage verification shall be entered by AI technicians on INAPH system.

5.8 Parentage verification of randomly selected female calves born from sorted semen will be arranged by NDDDB. In any case parentage testing error shall not exceed 10%. If parentage testing error exceeds 10% in that case IA may remove AI technician from the area.

5.9 Maximum two animals per farmer will be selected for AI using sex sorted semen for getting assured pregnancy

## 6. Financial Implication:

The proposed financial outlay of the program (Project period- 2021-22 to 2023-24) would be (Govt. of India contribution):

SN	Particulars	Financial Outlay in Rs in crore
1	Getting assured pregnancy using sex sorted semen (Rs 750 /pregnancy during 1 <sup>st</sup> and 2 <sup>nd</sup> year and Rs 400/ pregnancy from 3 <sup>rd</sup> year of the project)	323
2	Incentives to private AI technicians	100
3	Consumables for AI@ Rs 10/ AI	15
4	Extension activities for the popularity of the Program (Rs. 10 lakh per state/year) to SIA	5.10
5	Parentage verification of randomly selected female calves born from Sexed Semen (at least 1000 female calves per state to be randomly tested for Parentage Verification) @ Rs 1700 per test	8.67
6	Monitoring of the Program-NDDDB	3.00
	<b>Total Outlay</b>	<b>458</b>

## 7. Implementing Agency:

7.1 The component using sex sorted semen for getting assured pregnancy will be implemented through Implementing Agencies (State Livestock Development Board/



State Department of Animal Husbandry/State Milk Federation(Milk Union)/ NDDDB (NDS).

7.2 The Implementing Agency will either implement the programme through Service Provider or through own breeding network. Funds under the scheme will be transferred directly to Implementing Agency.

7.3 **All the sanctioned projects for establishment of sex sorted semen production facility under RGM will be closed and further implement the project in the manner as proposed in this document.**

## **8. Monitoring of the project:**

### **8.1 NDDDB**

Project will be monitored by National Dairy Development Board and funds are proposed under the project for monitoring of the project activities and Parentage verification.

NDDDB will be responsible for the following:

- Preparation of Operational Guidelines of the Program
- Designing system of Monthly reporting.
- Training
- Ensuring parentage verification as per guidelines of the scheme
- Organizing review meetings with IAs
- Periodic Field visits and random checking of information reported in INAPH with respect to field reality
- Periodic submission of Monitoring visit and progress reports to DAHD
- Evaluation of Projects
- Any other responsibility which arises while implementation of the programme.

### **8.2 Monitoring at the level of Call Centre:**

Call centre established under NADCP programme will be utilized for verification of AI conducted, and female calves born under the programme at regular intervals. Information received from the call centre will be analysed and submitted to IAs to take remedial measures.

### **8.3 Online Monitoring of the project:**

- For online monitoring all the activities of the project including identification of animals covered under the programme using Pashu Aadhar (AUID), AI using sex sorted semen, pregnancy diagnosis (after 90 days), birth of the calf, identification of calves using AUID will be uploaded on INAPH data base by AI

technicians. Incentives to AI technicians will be made available on the data basis of uploaded on the INAPH data base.

- AI technician will upload photograph of empty straw of sex sorted semen immediately after AI and handed over empty straw to concerned farmer.
- Verification of information entered by AI technician on the INAPH data base by local veterinarian/ DAHO on daily basis.
- System of push and pull messages to the beneficiaries from the data base at regular interval will be evolved.
- Verification of information uploaded on INAPH data base by NDDDB at regular interval (after every 15 days).

#### **8.4 Close Monitoring of the Project**

- All the activities Project will be monitored by National Dairy Development Board as Nodal Monitoring Agency over duration of five years throughout the country.
- DAH/ Milk Federation (Milk Unions)/ NDDDB (NDS) will monitor all the activities of the project through its field level institutions dairy cooperative societies/ Veterinary Hospital/ Veterinary Dispensaries.
- Pashu Sakhis established under NRLM will be roped in for monitoring of the project at beneficiary level and creation of awareness among the farmers.
- Further, State Level Review Committee meeting will be held every month under the Principal Secretary (Dairy Development/Animal Husbandry & Dairy Development) of the concerned State to review progress of project. MD of Milk Federation, CEO of LDB, Director (Animal Husbandry), and breeding experts of State veterinary University will be its members. Joint Secretary, DAHD or his representative will attend meeting once in every quarter. Monthly progress report will be prepared by Implementing Agencies and same will be reviewed by NDDDB. All the activities related to implementation of the project shall be noted and submitted to State Dairy Development/Animal Husbandry & Dairy Development Department.

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**Annexure-I**  
**State wise action plan for implementation of the project: Accelerated Female Calf**  
**Production Programme:**

SN	State	Cattle in lakh	Buffalo in lakh	Total	1 lakh Pregnancy/state with sexed semen /year	subsidy (Rs 750 for 2 years and Rs 400 for 3rd year)	Funds for Ext	Percentage Testing	Total Fund required Rs. In Lakhs
1	Andhra Pradesh	45.78	62.19	107.97	1,00,000	1900	30	51	1981
2	Assam	108.53	4.22	112.75	1,00,000	1900	30	51	1981
3	Bihar	153.11	77.20	230.31	1,00,000	1900	30	51	1981
4	Chhattisgarh	99.75	11.75	111.50	1,00,000	1900	30	51	1981
5	Gujarat	96.11	105.43	201.54	1,00,000	1900	30	51	1981
6	Haryana	18.21	43.68	61.89	1,00,000	1900	30	51	1981
7	Jharkhand	111.89	13.50	125.39	1,00,000	1900	30	51	1981
8	Karnataka	84.59	29.85	114.43	1,00,000	1900	30	51	1981
9	Madhya Pradesh	187.35	103.07	290.42	1,00,000	1900	30	51	1981
10	Maharashtra	139.25	56.04	195.29	1,00,000	1900	30	51	1981
11	Odisha	98.77	4.58	103.35	1,00,000	1900	30	51	1981
12	Punjab	24.73	40.16	64.89	1,00,000	1900	30	51	1981
13	Rajasthan	139.12	136.93	276.06	1,00,000	1900	30	51	1981
14	Tamil & Nadu	94.69	5.19	99.88	1,00,000	1900	30	51	1981
15	Telangana	42.18	42.26	84.44	1,00,000	1900	30	51	1981
16	Uttar Pradesh	187.89	330.17	518.06	1,00,000	1900	30	51	1981
17	West Bengal	190.21	6.31	196.52	1,00,000	1900	30	51	1981
	<b>Total</b>	<b>1822.17</b>	<b>1072.53</b>	<b>2894.70</b>	<b>1700000</b>	<b>32300</b>	<b>510</b>	<b>867</b>	<b>33677</b>