

# **Existing Minimum Standard Protocol (MSP) in semen station : disease testing protocol**

*SK Rana,  
Scientist-in-charge  
NDDB R&D Laboratory,  
Hyderabad, India*



# What is MSP diseases

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A set of diseases :

Causative agent should not be present in semen or preferably in the bull

# Diseases covered in MSP

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## ❑ ***Bacterial diseases :***

Bovine brucellosis,  
Bovine tuberculosis (BTB),  
Johne's disease (JD),  
Bovine genital campylobacteriosis (BGC)

## ❑ ***Viral diseases***

Infectious bovine rhinotracheitis (IBR),  
Bovine viral diarrhoea (BVD),  
Foot and mouth disease (FMD)

## ❑ ***Protozoan disease :***

Trichomoniasis.

# Name of the test and specimen to be collected

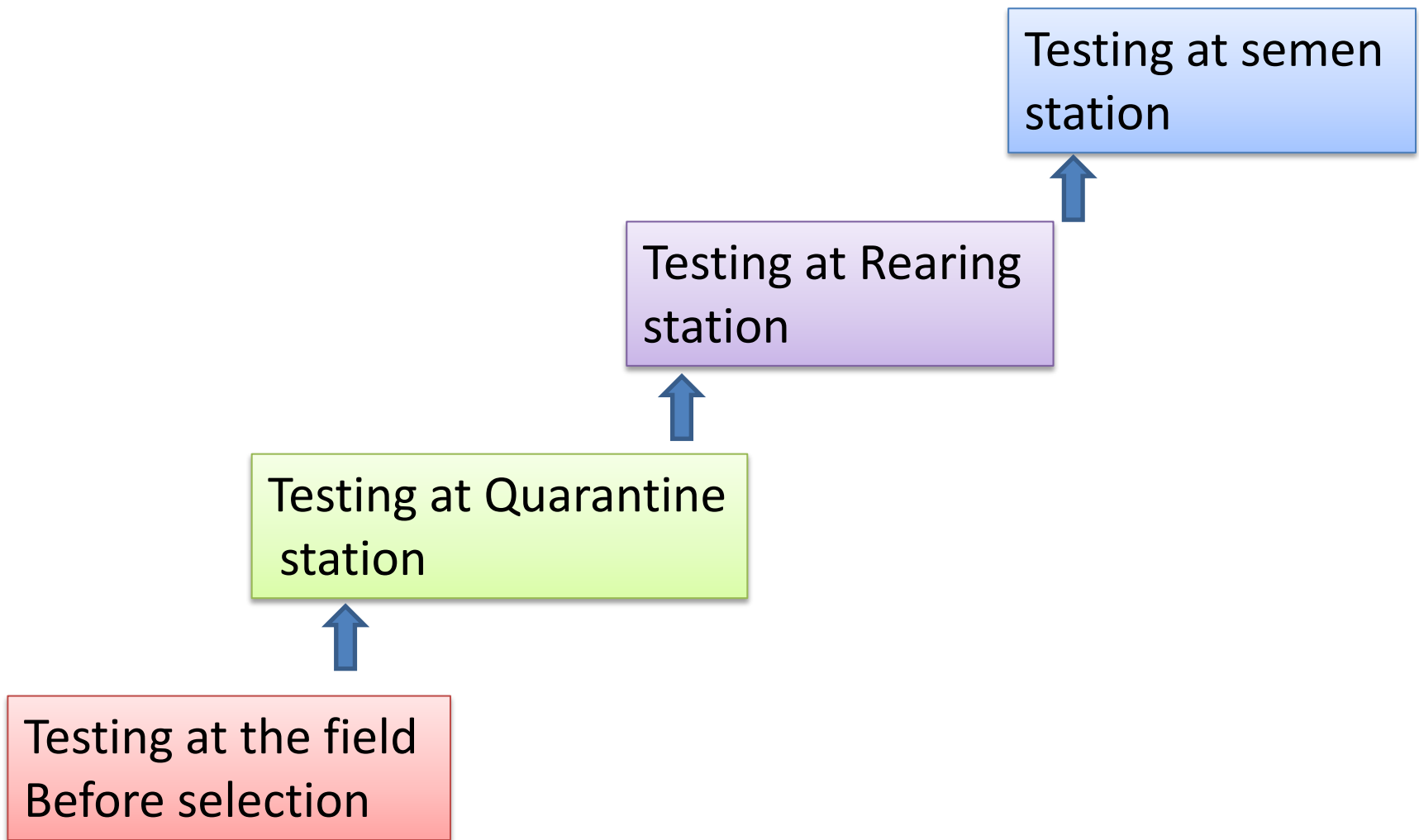
| Name of disease | Test to be conducted | Specimen                 | Purpose                      |
|-----------------|----------------------|--------------------------|------------------------------|
| Brucellosis     | ELISA                | Serum                    | Antibody Detection           |
| IBR             | ELISA                | Serum                    | Antibody Detection           |
|                 | Real-time PCR        | Semen                    | BHV-1 virus Detection        |
| BVD             | ELISA - Antigen      | Serum                    | BVD virus Detection          |
|                 | ELISA-Antibody       | Serum                    | BVD antibody Detection       |
| BGC             | Agent Identification | Semen/Prepuccial washing | Culture & identification     |
| Trichomoniasis  | Agent Identification | Semen/Prepuccial washing | Culture & identification     |
| FMD             | Sero-monitoring      | Serum                    | Post vaccinal antibody assay |
| TB & JD         | DTH - PPD            |                          | DTH                          |

# Name of the test and specimen to be collected

| Name of disease | Test to be conducted | Specimen                 | Testing laboratories      |
|-----------------|----------------------|--------------------------|---------------------------|
| Brucellosis     | ELISA                | Serum                    | CDDL, RDDDL, NDDDB, ADMAS |
| IBR             | ELISA                | Serum                    | CDDL, RDDDL, NDDDB, ADMAS |
|                 | Real-time PCR        | Semen                    | CDDL, RDDDL, NDDDB, ADMAS |
| BVD             | ELISA - Antigen      | Serum                    | CDDL, RDDDL, NDDDB, ADMAS |
|                 | ELISA-Antibody       | Serum                    | CDDL, RDDDL, NDDDB, ADMAS |
| BGC             | Agent Identification | Semen/Prepuccial washing | CDDL, RDDDL, NDDDB        |
| Trichomoniasis  | Agent Identification | Semen/Prepuccial washing | CDDL, RDDDL, NDDDB        |
| FMD             | Sero-monitoring      | Serum                    | PD-FMD labs, NDDDB        |
| TB, JD          | DTH-PPD              | SIT                      | CDDL, RDDDL, NDDDB        |

# Testing at various level as per MSP

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# Testing at Quarantine

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- Quarantine for Adult bulls of unknown health status
- Quarantine for Adult bulls of known health status
- Quarantine for calves above 2 months of age

# Quarantine for Adult bulls of unknown health status

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- Minimum 60 days or long enough for 2 tests
- Bulls should be negative for all MSP diseases in two tests
- Interval for TB&JD 62 days, 30 days for other diseases
- In case of +ve animal culling,
- Extended quarantine for remaining animals two tests
- Minimum 60 days
  - Individually kept : Cull only +ve animal
  - Kept in group : cull only infected group
  - Kept free not in group : cull all animals



# Quarantine for Adult bulls of known health status

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- Minimum **30 days** or long enough for **one test**
- Bulls should be negative for all MSP diseases in test
- Interval for TB&JD 62 days, 30 days for other diseases
- In case of +ve animal culling,
- Extended quarantine for remaining animals **one test**
- Minimum **30 days**
  - Individually kept : Cull only +ve animal
  - Kept in group : cull only infected group
  - Kept free not in group : cull all animals

# Quarantine for bulls : for shifting between farms of same management, from quarantine to rearing station

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- Minimum **30 days** or long enough for **one test**
- Bulls should be negative for all MSP diseases in test
- Interval for TB&JD 62 days, 30 days for other diseases
- In case of +ve animal culling,
- Extended quarantine for remaining animals **one test**
- Minimum **30 days**
  - Individually kept : Cull only +ve animal
  - Kept in group : cull only infected group
  - Kept free not in group : cull all animals

# Quarantine for calves above two months of age

Minimum 60 days or long enough for 2 tests

TB & JD

- Two tests 62 days interval
- Remove +ve,
- Extended quarantine 60 days

BGC & Tricho

- Testing at 6 months age
- Remove +ve,
- Extended quarantine 60 days

Brucellosis

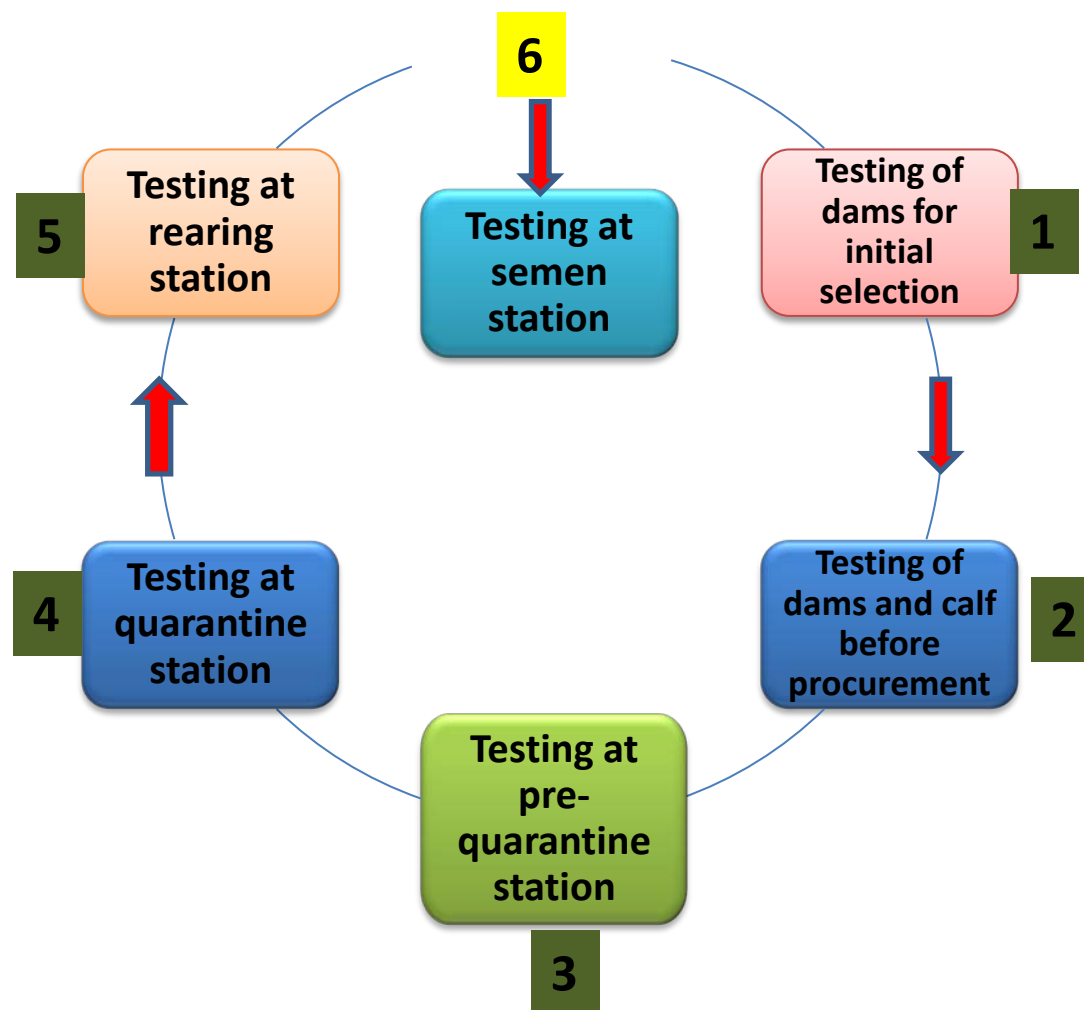
Cull +ve  
irrespective of age &  
extended quarantine

or

- Retain +ve below 9 months age
- Retest at 9 months of age
- Cull +ve one
- Extended quarantine

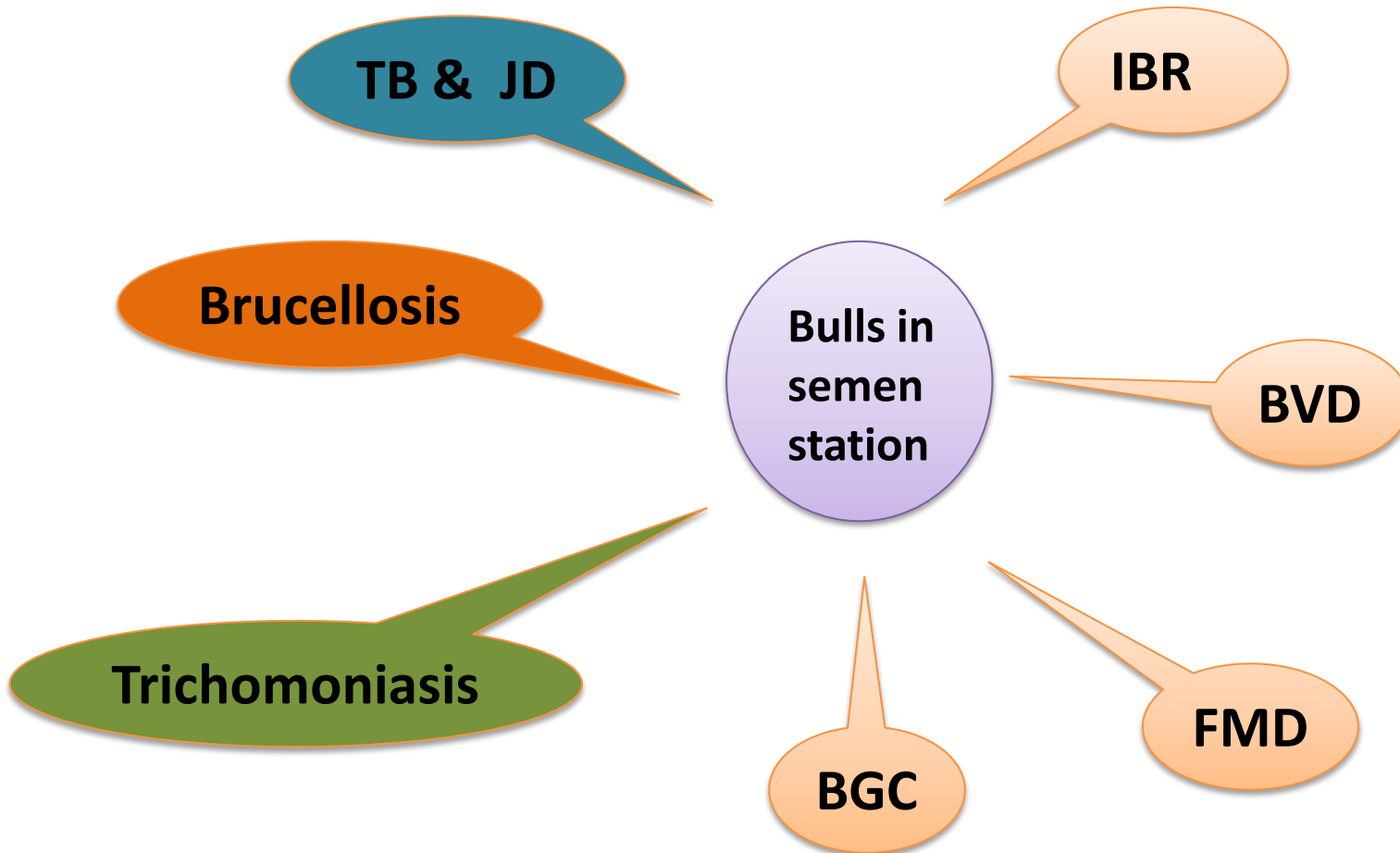
# Testing at various level of calf selection

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# Disease testing at Semen station

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# Disease testing of bulls at semen station

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## Tuberculosis

- Test : Delayed Hyper sensitivity : Single intradermal test
- Bovine Tuberculin PPD
- Immediate culling of +ve animals
- Destruction of frozen semen doses since last –Ve test
- Retesting herd at least after 42 days
- TB Free herd : Test –Ve all animals two consecutive test of 6 months interval
- Negative herd : testing 6 monthly interval

# Disease testing of bulls at semen station

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## Johne's Disease

- Test : Delayed Hyper sensitivity : Single intradermal test
- Johnin PPD
- Immediate culling of +ve animals
- Destruction of frozen semen doses since last –Ve test
- Retesting herd at least after 42 days
- JD Free herd : Test –Ve all animals two consecutive test of 6 months interval
- Negative herd : testing 6 monthly interval

# Disease testing of bulls at semen station

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## Brucellosis

- Test : Antibody detection by ELISA in serum
- All animals above 9 months of age
- Immediate culling of +ve animals after castration
- Destruction of frozen semen doses since last –Ve test
- Retesting herd after 30-60 days culling of last +ve animal
- Brucella free herd : Test –Ve all animals two consecutive annual test/one year
- Negative herd : Testing 6 monthly interval



# Disease testing of bulls at semen station

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## Bovine genital campylobacteriosis

- Test : Agent identification by cultural isolation
- All animals above 6 months of age
- Immediate isolation of +ve animal : Culling/treatment
- Destruction of frozen semen doses since last –Ve test
- Retesting herd after 30 days culling/treatment of last +ve animal
- BGC free herd : Test –Ve all animals two consecutive annual testing
- Negative herd : Testing annually

# Disease testing of bulls at semen station

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## Bovine Trichomoniasis

- Test : Agent identification by cultural isolation
- All animals above 6 months of age
- Immediate isolation of +ve animal : Culling/treatment
- Destruction of frozen semen doses since last –Ve test
- Retesting herd after 30 days culling/treatment of last +ve animal
- Trichomoniasis free herd : Test –Ve all animals two consecutive annual testing
- Negative herd : Testing annually

# Disease testing of bulls at semen station

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## Infectious bovine rhinotracheitis

- Test : Antibody detection by ELISA in serum
- Introduction of only –Ve animals above 9 months of age
- Immediate culling of sero +ve animals after castration
- Retesting after 30-60 days
- IBR free herd : testing every 6 months

# Disease testing of bulls at semen station

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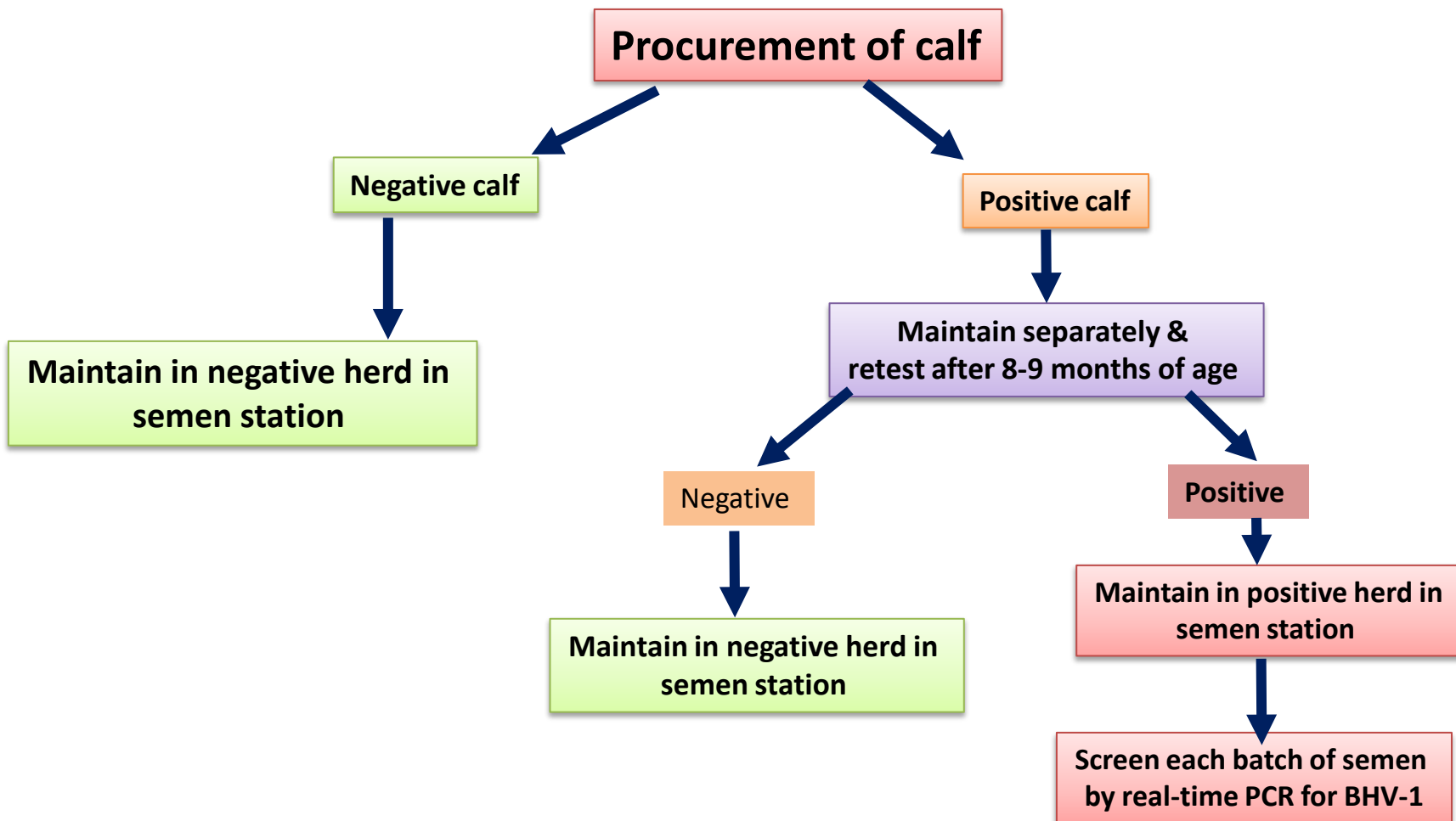
## Infectious bovine rhinotracheitis

**In case culling of positive animals not possible :**

- Isolation of positive animals
- Process & store semen separately
- Each ejaculate to screen for BHV-1 by real-time PCR
- Discard of PCR positive semen batches

# Infectious Bovine Rhinotracheitis (IBR)

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# Disease testing of bulls at semen station

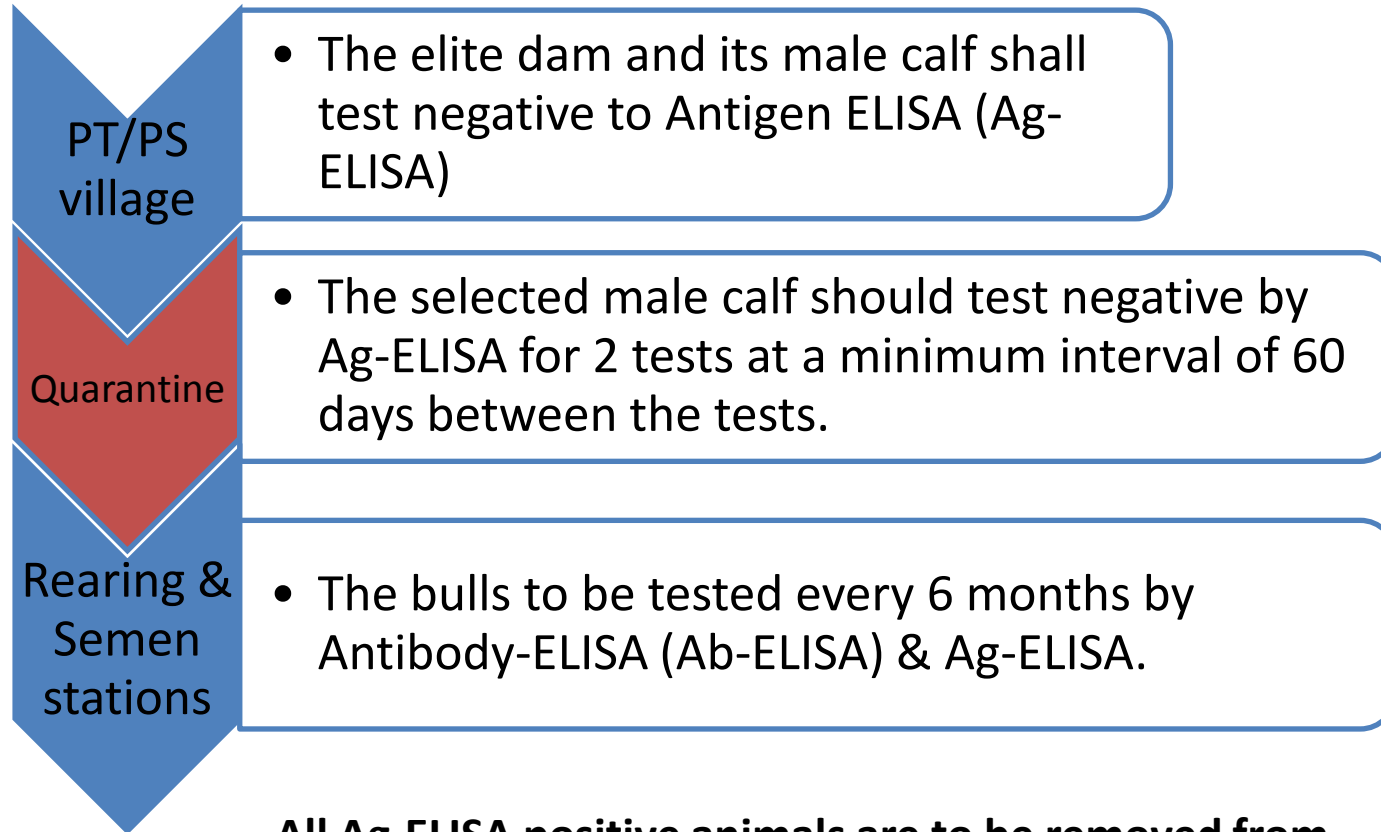
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## Bovine viral diarrhoea (BVD)

- Test 1 : Antibody detection by ELISA in serum
- Test 2 : Antigen detection by ELISA in serum
- Introduction of only –Ve animals
- Testing of bulls in SS :
  - Culling of Antigen ELISA +ve animals
  - Testing by antibody ELISA twice 30days interval
  - Culling if antibody titre increases
- Retesting of remaining animals 30-60 days after culling
- BVD free herd : testing every 6 months

# Possible BVD control strategy

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**All Ag-ELISA positive animals are to be removed from the bull production programme, semen station.**

# FMD : In case of outbreak in semen station

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- **Farm:** Suspension of semen collection during outbreak
- No collection until one month after last case recovered
  
- **Infected bull** – Isolation, no collection during outbreak
- Culling of semen doses -one month prior to, during and 3 months after recovery of last case
  
- **Healthy bull in same farm** - No collection,
- Culling of semen -one month prior to onset, during and one month after recovery of last case



# FMD : Vaccination in areas surrounding semen station

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- In case of FMD outbreak in surrounding area
- Immediate ring vaccination 10 km radius starting from the foci of infection
  
- Routine FMD vaccination in surrounding area
- Ring vaccination 10 km radius around the semen station

# Disease testing of bulls at semen station

TB & JD : 6 monthly , +Ve cull  
repeat after 42 days in +ve herd  
Until all negative  
Thereafter 6 monthly

IBR: -Ve at 9 months age  
+Ve cull, retest herd 60 days  
Until all -Ve  
Thereafter 6 monthly  
+Ve Bull semen testing for BHV-1

**Bulls in  
semen  
station**

Brucellosis : 6 monthly , +ve cull  
Repeat after ~60 days in +ve herd  
Thereafter 6 monthly

BVD : -Ve for Ag & Ab ELISA  
+Ve cull retest herd 60 days  
Until all -Ve  
Thereafter 6 monthly

BGC & Tricho : at entry , +ve treat  
Repeat after ~30 days after treatment  
Thereafter Annually

# Test protocol prescribed in OIE and MSP

|   | OIE                                    | MSP India            |
|---|--|----------------------|
|   | Prescribed Test                        | MSP Tests            |
| Bovine tuberculosis (TB)                | Tuberculin test                        | DTH (Tuberculin PPD) |
| Paratuberculosis (JD)                   | –                                      | DTH (Johnin PPD)     |
| Bovine brucellosis                      | BBAT, CF, ELISA, FPA                   | ELISA                |
| Trichomoniasis                          | Agent id.                              | Agent id             |
| Bovine genital campylobacteriosis       | Agent id.                              | Agent id             |
| Infectious bovine rhinotracheitis (IBR) | VN, ELISA, Agent id. (semen only), PCR | ELISA, Semen - PCR   |
| BVD-MD                                  | Agent id, ELISA                        | ELISA                |
| Foot and mouth disease                  | ELISA, VN                              | ELISA                |

*Thank you for your kind  
attention*