

The key role of animal farmers in combating Foot and Mouth Disease in India

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Today India is the highest milk producer in the world and on retrospection this significant achievement makes us realise that such an accomplishment would not have been possible without the contribution of millions of animal farmer of this country. But for their sustained and untiring efforts, it would not have been possible for India to attain this glory. This achievement was made despite the inhibiting factors such as relatively low genetic potential of a low proportion of the animals, shortage of animal feed/fodder resources and above all the incidence of many devastating animal diseases, viz. as anthrax and foot and mouth disease (FMD) etc. While the Operation Flood Programme spearheaded by the National Dairy Development Board, helped organising farmers in cooperative institutions to enable them to manage their dairying enterprise, various schemes and programmes launched by the governments also contributed. The participation of animal farmers along with strategic planning and implementation of disease control programmes made it possible to eradicate the dreaded diseases like rinderpest and contagious bovine pleuropneumonia. Now it is our top priority to control FMD.

FMD is a highly contagious and devastating disease affecting cloven-footed animals including cattle, buffaloes, sheep, goat, pigs and wild ruminants. The disease is caused by FMD virus having seven distinct serotypes, viz. O, A, C, Asia-I, SAT1, SAT2 and SAT3. Only FMD virus types O, A and Asia-I are prevalent in India. Earlier type C was also prevalent, but it has not been recorded since 1995. Majority of the outbreak recorded in the country are caused by FMD virus type O followed by 'type A' and A. FMD causes severe economic loss and hence, it is extremely important to prevent the disease by regular vaccination, adopting zoo-sanitary

measures and growing awareness among the animal farmers about this disease. Due to weak virulence of the FMD virus, multiplicity of virus strains, presence of robust aerosol challenge, lack of herd immunity, occasionally vaccinated animals may also acquire infection. However, symptoms of disease, duration of infection and number of animals infected in a vaccinated herd are reported to be much lower than that of unvaccinated herd. Control and prevention of this disease will check the enormous economic loss caused by FMD in terms of direct and indirect losses. Under these circumstances it would be essential to put the collective efforts to fight against FMD towards achieving a FMD free country. It would only be possible through the dynamic participations of the farmers to

combating this disease, as it has already been demonstrated to other animal diseases like eradication of rinderpest.

What should farmer do to protect his animals against FMD?

Farmer should get all his animals (above four months of age) vaccinated against FMD. There may be transient loss of milk yield after vaccination for a few days, which generally comes back to normal. In rare cases hypersensitivity may occur, immediate treatment with antihistaminics is advocated. farmer should persuade other farmers also to get their animals vaccinated routinely in every six months.

farmers should attempt to get their all animals vaccinated at the

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same time so that herd immunity is developed.

Adequate precautions should be taken during vaccination. The vaccine should be transported in 4-X" until the vaccine is injected to animal. Separate needle should be used for each animal. Proper restraining of animals is required during Vaccination.

Animals at the advanced stage of pregnant animals should not be vaccinated and vaccination may be done after calving.

Records for vaccination, indicating the date of vaccination, manufacturer/batch no of vaccine, should be maintained, so that investigations could be undertaken as and when required.

Even after vaccination there is a possibility of FMD infection due to exposure of the vaccinated animals to high viral challenge through aerosol route or infection with different FMD virus strain.

All new animals introduced to a herd should be vaccinated as early as possible with FMD vaccine.

Vaccination schedule for FMD vaccination should be maintained. All workers and other people coming in contact with animals should be educated so that they inform the farmer any known occurrence of FMD.

All vehicles bringing materials from animals or collecting animal produce should be disinfected, especially the tyres with 4% washing soda solution in water. Probably, due to increased agricultural activity, carrier movement/introduction as well as due to low climatic temperature during this period during the months of November to March more number of FMD outbreaks are recorded, hence we should be more vigilant during this period. All the animals should be dewormed 15-30 days prior to FMD

vaccination which may result in better sero-conversion.

What should farmer do to protect his animals when there are FMD outbreaks in the villages?

Inform the nearest government veterinary officer/milk union.

Educate the farmer whose animals are affected to isolate the affected animals and properly disinfect the left over feed etc. (as indicated below).

Do not allow your animals to leave the farmer's place where FMD outbreak is in progress.

At early stage of outbreak, where movement of animals could be restricted, ring vaccination in un-infected animals around the infected village/area may be useful to prevent the further spread of the disease. Vaccinations should be done from the periphery towards the focus of infection.

Before the outbreak occurs in an area

DO'S	DONT'S
1. Get cattle, buffaloes, sheep, goats and other cloven hooved animals vaccinated against Foot & Mouth Disease (FMD) and ear tag them.	1. Do not purchase/bring any animal into the village from an area where Foot & Mouth Disease is prevailing.
2. All animals over four months of age should be vaccinated. Booster dose of vaccine should be administered four weeks after primary vaccination and regular vaccination in every 6 month.	2. The animals in advanced stage of pregnancy, i.e. preferably after six months should not be vaccinated as the manhandling during the process of vaccination may cause abortion. Such animals should be vaccinated 4-6 weeks after calving.
3. Thereafter repeat vaccination at 6 month interval in all the animals. This ensures a good level of protection against the disease.	3. Do not allow animals to come into contact with trade animals moving along cattle routes close to the village as they may be infected with FMD.
4. Vaccinating all the animals of a village at one time is much more effective than vaccinating only a few animals of the village or vaccinating in groups on different dates	4. Do not take unvaccinated animals to cattle fairs/shandies etc. Vaccinated animals which have already received a booster dose at least three weeks before the cattle fair/shandy, only should be taken. Infected animals brought to the fair may spread the disease.
5. Ideally, only vaccinated animals should be brought into the village (from outside sources), that too only 15 to 21 days after vaccination.	
6. Ensure that the FMD Vaccine used is stored and handled between 2°C to 20°C.	
7. Keep a record of vaccination, i.e. the date of vaccination, brand of vaccine, date of manufacture, and batch number.	
8. On receiving a report of FMD outbreak in a neighbouring village or in case of an FMD outbreak in the village itself, it would be the responsibility of the Village to contact Govt Veterinary officer/Dairy Cooperative/ Gram Panchayat to get the baths filled with 4% sodium carbonate (washing soda) solution every day. This solution should be used for cleaning the animal premises.	
9. This will check the spread of the disease. This procedure should be continued till about one month after the outbreak subsides.	
10. Around 400 g of sodium carbonate in one bucket containing 10 litres of water, would make an approximately 4% solution.	
11. Procure/purchase fodder for animals from a place where FMD has not been reported/seen for a minimum of 6 to 8 month.	

In the event of FMD outbreak in a village/area

DO'S	DONT'S
1. Society/Gram Panchayat etc. should inform the nearest Veterinarian by the quickest means.	1. Do not send your animals to the common grazing pasture along the road sides especially those used to trade cattle. There are chances of spread of the disease to healthy animals by them mixing with the infected ones from the affected villages.
2. Isolate and confine the affected animals immediately on detecting the disease.	2. They should also not allow their animals to drink water directly from the common source (streams/rivers). It is likely that the Infected animals might have drunk water upstream and contaminated the water.
3. At early stage of outbreak, where movement of animals could be restricted, a ring vaccination in un-infected animals around the infected vlage/area may be useful to prevent the further spread of the disease. Vaccinations should be done from the periphery towards the focus of infection.	3. Do not allow diseased animals to roam around with the other village animals.
4. The disease can occur even in vaccinated animals until 21 days after vaccination.	4. Do not vaccinate animals in immediate contact of the affected animals, as they are in all probability in the incubation period of the disease.
5. The In contact animals may be in incubation period and may get the disease.	5. The disease can be spread by persons moving out of the village. The movement of persons out of infected village should be restricted.
6. If the recommended vaccination schedule is followed with FMD Vaccine before the outbreak of FMD in the village, the animals are not likely to get the disease.	6. In case it is not avoidable people leaving the village should scrub themselves and their belongings properly with soap.
7. All the animals over four months of age to be vaccinated for the first time, should be given booster after four week and then repeat it at six monthly intervals.	7. They should not come in contact with healthy animals and should avoid going to farms or places where animals are kept.
8. Only animals vaccinated 15 to 21 days'before the date of entry should be allowed to enter the village.	8. Avoid purchasing animals until six months after the outbreak is over at the source.
9. The Society/Gram Panchayat should advise the farmers to boil the milk before taking it to the society or consuming it.	
10. The healthy animals should be attended first and then the affected ones.	
11. After attending sick animals, the person should wash himself and his belongings, i.e. clothes etc. with 4% sodium carbonate solution.	
12. The sodium carbonate solution may be prepared by dissolving approx. 400 gms of sodium carbonate in 10 litres of water (one ordinary bucket).	
13. The society should ensure that the mk cars are scrubbed thoroughly with 4% sodium carbonate solution both morning and evening, before sending them out of the village.	
14. Other utensils use<lfor collecting milk should also be cleaned with 4% sodium carbonate solution after collecting the milk.	
15. This should be continued till about one month after the outbreak subsides.	

Avoid bringing-in fced/f(>ddcr ere. from the village where FMD outbreak is in progress.

The floor of the premises where animals are housed should be cleaned with 4% soda water at least twice in a week as precautionary measures.

- Lime powder can be sprinkled on the unoccupied area/road of the animals sheds.

What should farmer do when his animals are affected with FMD?

- Report the disease to the nearest veterinary officer/milk union.
- Isolate the affected animals from

the rest of the animals.

Wash the mouth and feet lesions with 1% potassium permanganate solution. A paste made from boric acid and glycerine could be applied to mouth lesion and copper sulphate could be used for disinfections.

To prevent further contamination/mastitis the affected animal should be given proper treatment with antibiotics etc. with the advice of the veterinarian.

- Feed the affected animals with soft palatable diet like rice gruel etc. Burn the leftover feed/fodder, soiled bedding etc.

- Arrange proper disposal of dung and urine from infected animal with lime powder or 4% washing soda solution in water.

Milk from infected and in-contact animals should be used only after boiling. Do not let calf suckle milk.

Infected animals should be handled last and hands of handler should be thoroughly disinfected with 4% soda water.

- The floor of the infected premises should be cleaned with 4% soda water.

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During FMD outbreak in a dairy/breeding farm

DO'S

1. Inspect your animals frequently. Do not hurry your inspection. Look out for any of the symptoms specially fever, salivation, blisters or sores on the mouth and feet, and lameness. Early reporting of any suspicion of disease is vital.
2. Inform the nearest Veterinarian immediately.
3. Keep only one combined entrance/ exit and it should be locked.
4. Provide a vehicle bath for tyres and foot bath at the entrance of the farm and ensure that all persons and vehicles entering or leaving the farm use it. It may be 20ft x 10ft with a gradient on either side making 9-12 inch depth at the centre. The bath should be lined with fresh 4% sodium carbonate solution every day. (Preferably, tyre and foot dip should be followed even in absence of active FMD outbreak, this will prevent introduction of disease in the farm).
5. Isolate the affected animals and stall feed and water them to avoid spread of infection.
6. Remove the left over feed, fodder, dung, urine etc. from the infected area every day.
7. Soak it with 4% sodium carbonate solution and bury /burn it.
8. Fill a kg of sodium carbonate solution in one bucket of water, i.e. approx. ten litres would make a 4% solution.
9. Sufficient water should be used to flush the slurry and urine in a pit especially dug for the purpose.
10. Sprinkle 4% sodium carbonate solution over pillars, walls and wash floors with it.
11. Dirty surfaces need to be cleaned before it is satisfactorily disinfected.
12. The practice should be repeated daily till the disease subsides.
13. Also sprinkle lime powder around the animal houses daily.
14. Milk from the affected animals should be boiled/pasteurized before taking off the farm.
15. A separate attendant should handle the affected animals.
16. He should be made to wear protective clothing, which should be washed after use with 4% sodium carbonate solution.
17. The milk cans should be scrubbed with 4% sodium carbonate both morning and evening before they leave the farm. This should be continued for at least one month after the outbreak subsides.
18. Wash the mouth of the affected animals with 1% potassium permanganate solution three or four times a day.
19. Wash the feet of the affected animals thoroughly with 1% or 2% copper sulphate solution and apply fly repellents and antiseptics.
20. In case of complications consult the nearest Veterinarian for proper treatment.
21. Nearby animal husbandry authority should be informed immediately for collection of samples and disease investigation.
22. The FMD samples collected by the Veterinarian should be immediately sent to the nearest FMD Typing Centres.

DONT'S

1. Do not allow apparently healthy animals to come in contact with the affected animals or its feed, fodder, water etc.
2. Vaccination against FMD at this stage is of doubtful value, as it takes 21 days after vaccination to give protection. Further needle contact and handling of animals are likely to spread the disease.
3. Do not allow the calves to suckle the affected mothers and do not feed calves with milk from affected animals.
4. Do not allow the affected animals to move about freely as they may spread the infection.
5. Do not allow visitors on your premises.
6. Do not allow persons/labourers to leave the farm.
7. Do not allow vehicles to enter the farm.
8. Do not allow susceptible wild animals to stray into the farm.

animals shed .

The infected animals should not be allowed to graze in the common area of grazing or drinking.

Each animal should not be introduced during the phase of outbreak.

SCMMAHY

FMD causes severe economic loss and hence, it is extremely important to prevent the disease by regular

vaccination, adopting zoo-sanitary measures and growing awareness among the animal farmers about this disease. Due to weak antigenicity of the FMD virus, multiplicity of virus strains, presence of robust aerosol challenge, lack of herd immunity, occasionally vaccinated animals may also acquire infection. However, symptoms of disease, duration of infection and number of animals infected in a vaccinated herd are reported to be much lower than that

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