



Rinderpest on the ropes

By 2010, this deadly bovine plague could become the second disease eradicated in history, after smallpox

FAO animal health experts are increasingly confident that the virus responsible for the devastating livestock disease rinderpest is no longer present in three of its last reserves, in Pakistan, Sudan and Yemen. Efforts are now underway to locate and eliminate the last traces of the virus in the Horn of Africa in order to meet the 2010 deadline for declaring the world completely free from the disease. That would make rinderpest the second disease eradicated in history, after smallpox.

Rinderpest is the most dreaded bovine plague, a highly infectious viral disease that can destroy entire populations of cattle and buffaloes. Although the virus does not affect humans directly, in regions that depend on cattle for meat, milk products and draught power, rinderpest has caused widespread famine and inflicted serious economic and social damage. A rinderpest outbreak that raged across much of Africa in the early 1980s is estimated to have caused losses of at least \$2,000 million.

Under FAO's Global Rinderpest Eradication Programme (GREP), animal health experts are working to reduce the incidence of rinderpest infection to zero. "The last few *foci* of the disease must be located, contained and eliminated," says Peter Roeder, GREP's Secretary. "Where there are suspicions that the disease could be lurking, these must be verified and dealt with. This needs innovative community-based programmes in remote and sometimes insecure areas. The means are available, all we need to do is apply them."

Success in Pakistan, Sudan, Yemen. In Asia, the last reported outbreak of rinderpest was in Sindh Province, Pakistan in October 2000. Since then, investigations supported by the European Union and FAO indicate that the disease is no longer present anywhere in the country. "Achieving eradication would be a remarkable success for Pakistani authorities," Roeder says. "Even recent massive movements of buffaloes and some cattle from Sindh and Punjab Provinces to Afghanistan, with some onward



trade to Iran, have not been accompanied by rinderpest. It is conceivable that Asia is now free from rinderpest for the first time in millennia, although of course it will take some time before freedom can be proved in accordance with internationally accepted guidelines."

In Yemen, where livestock imports arrive from both Asia and Africa, FAO-supported studies suggest that the disease died out about five years ago, after having been present continuously from at least the 1970s. Confidence in the success of eradication efforts is due to concerted surveillance efforts by the Yemeni government and FAO, with the participation of cattle owners. The process was helped by training in disease recognition, reporting and investigation follow-up.

Mass vaccination of a million cattle in southeastern Sudan between May 2001 and May 2002 has contributed to growing indications that the virus has finally been eliminated in that country. The story of this campaign began in the late 1980s when UNICEF encountered resistance to its child vaccination programme in southern Sudan. "Vaccinate our cattle and then you can vaccinate our children, because if our cattle die, then our children will die anyway," they were told by villagers, who feared rinderpest above all other diseases. Joined by US-based Tufts University and NGOs, UNICEF launched a livestock programme within Operation Lifeline Sudan. A new vaccine that does not need constant refrigeration helped the effort considerably. So did a community-based animal

health network, in which respected herders were taught how to provide services - most importantly, rinderpest vaccination - to their communities.

FAO took over responsibility for Operation Lifeline Sudan from 2000 and, working with many partners, narrowed down the likely final hiding place of the rinderpest virus to the herds of the Murle and Jie tribes. Operating in remote bush without roads or infrastructure, the vaccination drive had to work on both sides of a conflict-racked area. "FAO was the neutral party that could work with both sides in the conflict," Roeder says. "We pushed the campaign towards eradication rather than control. We mobilized all the players - NGOs, herders, Government - to go in and vaccinate approximately 1 million cattle belonging to the Murle and Jie peoples, cattle which had never been effectively vaccinated before."

Recent missions to Sudan by Operation Lifeline Sudan and the Pan-African Programme for the Control of Epizootics (PACE) have found no evidence of the virus, he notes. "If confirmed, this will be a remarkable achievement for all concerned parties, achieved by concerted action sustained over many years despite very serious constraints."

Last stronghold. But FAO warns that progress in eradicating rinderpest risks being reversed if the virus manages to break out of its last strongholds, which appear to be limited to extensive cattle herds in the semi-arid rangelands of the Horn of Africa. If that happens, cattle movements and trade would not only threaten neighbouring areas of Africa, but could carry the virus across the Red Sea to the Arabian Peninsula or even further afield in Asia. "The 'Somali pastoral ecosystem', which covers south-east Ethiopia, north-east Kenya and southern Somalia, is the great challenge now," says Roeder. "It is almost certainly the last refuge of the rinderpest virus in the world, although we do not know at present exactly where the virus is."

The virus was last "sighted" in Kenya in 2001, when the disease was diagnosed in buffalo in the Meru National Park and later confirmed by tests at the World Reference Laboratory for Rinderpest in the UK. While recent PACE surveys in areas of southern Somalia have found no cases of rinderpest, evidence indicates that the virus survives in one or more of the Somali pastoral ecosystem's three geographical areas. In the past, the virus has repeatedly broken out of the ecosystem and spread as far as Tanzania, affecting cattle and killing wildlife. Recent reports that traders may be arranging to start exporting cattle to Southeast Asia have raised fears that the virus could even re-infect a part of the world free from the disease since the 1950s.

Under the PACE programme, funded by the EU, an NGO coalition working in southern Somalia has provided valuable details of the extent of the area in which the virus has survived, at least until recently. FAO is now urging the international community to provide additional resources and intensify efforts to search for and destroy the virus where it is active, through targeted vaccination.

"To realize the goal of a global declaration of complete freedom from rinderpest by the end of 2010, the virus must ideally be eradicated by the end of 2003, followed by years of verification and virus containment, including steps such as destroying lab samples of the virus," Peter Roeder says. "The PACE programme, supported by the EU, is well placed to undertake the final thrust of rinderpest eradication on which the success or failure of GREP depends. If all stakeholders seize the opportunity to work together with PACE and FAO, the prospects for global eradication are better now than ever before. Working with the Office International des Epizooties we can then proceed to providing the final proof that rinderpest has been conquered."