



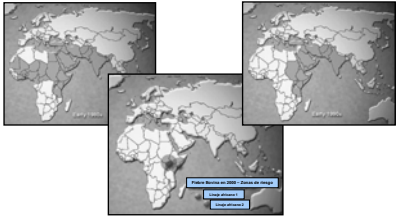





S_Rinderpest

S l i d e 1	<p style="text-align: center;">Peste bovina</p> 	<p>Rinderpest is a contagious disease of cattle, sheep, and goats that has also been called cattle plague.</p>
S l i d e 2	<p style="text-align: center;">Panorama General</p> <ul style="list-style-type: none">• Causa• Impacto económico• Distribución• Transmisión• La enfermedad en los animales• Prevención y control  <p style="text-align: center;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>In today's presentation we will cover information regarding the virus that causes rinderpest and its characteristics. We will also talk about the economic impact the disease has had in the past and could have in the future. Additionally, we will talk about how it is transmitted or spread, the types of animals it affects and the disease in animals (clinical signs). Finally, we will address prevention and control measures for the disease as well as actions to take if rinderpest is suspected.</p>
S l i d e 3	<p style="text-align: center;">La causa</p>	<p>Let's begin by discussing the cause of rinderpest.</p>
S l i d e 4	<p style="text-align: center;">Peste bovina</p> <ul style="list-style-type: none">• Virus de la peste bovina (RPV)• Otros miembros de la familia incluyen<ul style="list-style-type: none">- Al virus de sarampión humano- Al virus de moquillo canino• Enfermedad ocasionada por un solo tipo de virus<ul style="list-style-type: none">- Las cepas de campo varían  <p style="text-align: center;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>This disease is caused by the rinderpest virus (RPV) which is very similar to canine distemper virus and human measles virus, two very contagious diseases. There is only one type of rinderpest virus, but field strains vary widely in severity of the disease they cause, how easily they spread between animals and what type of animals they infect. Photo (Electron photomicrograph of the rinderpest virus) from The Big Picture Book of Viruses: Paramyxoviridae accessed at www.virology.net/Big_Virology/EM/rpv1.JPG.</p>
S l i d e 5	<p style="text-align: center;">Importancia</p>	<p>Rinderpest is a threat to the U.S. because American livestock are naïve and it could have a huge economic impact.</p>




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S l i d e 6	<p style="text-align: center;">Antecedentes históricos</p> <ul style="list-style-type: none">• "Rinderpest"<ul style="list-style-type: none">- Término en alemán para peste bovina• 1184 AC: El sitio de Troya• 1762: Primera escuela de medicina veterinaria establecida en Francia• 1885: "Gran Pandemia Africana"• 1960's: Erradicada de la mayor parte de Europa, China, Rusia y el Lejano Oriente• 1992: Programa Mundial de Erradicación de la Peste Bovina (GREP) <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>The word "rinderpest" is German for pestilence or plague of cattle. Accounts of rinderpest virus or cattle plague date back to the siege of Troy in 1184 BC. Since that time RPV has been associated with war and movement of armies. War remains a factor in RPV spread when refugees from Iraq brought infected cattle with them into Turkey in the early 1990's. RPV was responsible for the establishment of the first veterinary school in 1762 in Lyon, France. 1885 marked the "Great African Pandemic" which killed 80-90% of the wild ruminants; 2.5 million cattle died in South Africa alone. In the 1960's RPV was eradicated from most of Europe, China, Russia and the Far East. 1992 saw the establishment of the Global Rinderpest Eradication Program (GREP) by the Food and Agriculture Organization of the United Nations (FAO).</p>
S l i d e 7	<p style="text-align: center;">Impacto económico</p> <ul style="list-style-type: none">• Destruye poblaciones enteras de bovinos• Conduce a hambruna en zonas dependientes de bovinos• Brote de 1982 a 1984: \$500 millones• Se gastan al año \$100 millones en vacunas  <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Outbreaks of rinderpest can have devastating economic effects. Rinderpest is highly contagious and can destroy entire populations of cattle and buffalo. Outbreaks can lead to famine in areas where cattle are depended upon for meat, milk and draft power. An epidemic in sub-Saharan Africa in the 1980's wiped out most of the cattle. A 1982 to 1984 outbreak in Africa caused an estimated loss of \$500 million as a result of livestock losses and control measures. It is estimated that \$100 million is spent annually world-wide for vaccination. (Photo: www.fao.org)</p>
S l i d e 8	<p style="text-align: center;">Distribución</p>	<p>Next we will discuss where rinderpest is found and how severely it affects animals with the disease.</p>
S l i d e 9	<p style="text-align: center;">Programa Mundial de Erradicación de la Peste Bovina</p>  <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>This series of maps from the Global Rinderpest Eradication Program (GREP), shows how well the program has worked towards eradicating rinderpest. The map in the upper left shows rinderpest endemic areas in the 1980's, the map in the upper right is the 1990's, and the lower center map shows the remaining foci of rinderpest in Africa in the 2000's. GREP is designed to respond to and address all rinderpest outbreaks in order to reach the goal of complete eradication by the year 2010. Their goals and challenges are to eliminate the last foci of virus persistence, remove doubt about rinderpest persistence, persuade uncommitted countries to endorse GREP, strengthen rinderpest surveillance and emergency preparedness and to ensure cessation of unnecessary mass vaccination.</p>

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S l i d e 1 0	<h3>Animales afectados</h3> <ul style="list-style-type: none">• Bovinos, búfalos• La mayoría de los animales de pezuña hendida tanto silvestres como domesticados pueden contraer la enfermedad<ul style="list-style-type: none">– Cebúes, borregos, cabras, cerdos y animales ungulados en contacto con bovinos– Si no fuera por la reinfección de los bovinos, el RPV se extinguiría en los animales cinegéticos  <p><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Rinderpest is a serious disease mainly of cattle and domestic buffalo, including water buffalo. Most wild and domestic cloven-hooved animals can become infected including zebu, sheep, goats, pigs (Asian pigs appear to be more susceptible than African or European pigs) and wild ungulates including African buffalo, elands, kudus, wildebeests, antelopes, bush pigs, warthogs, giraffes and hippopotamuses. In Africa, 13 species of game animal are naturally infected with rinderpest virus and six more species can be infected experimentally. Buffalo and wildebeest are the greatest RPV spreaders; but without reinfection from cattle, rinderpest would probably die out in wild game. (Photos: www.fao.org)</p>
S l i d e 1 1	<h3>Enfermedad/Muerte</h3> <ul style="list-style-type: none">• El pronóstico es desfavorable para poblaciones que no hayan sido previamente infectadas• Las tasas de mortalidad pueden alcanzar el 100%• El ganado susceptible está constituido por adultos inmaduros o jóvenes  <p><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>In most cases, the prognosis for rinderpest is poor. This is especially true where it occurs in previously non-infected populations and the animals have no immunity. Under these conditions, death rates can reach 100%. Animals that do recover are immune for life. In areas where the virus is present, newborn animals are protected from 6 to 11 months of age by immunity passed on from their mother. Because this immunity does not last, the most susceptible animals are the immature or young adults. (The black and white photo depicts the mass burial of animals that died from rinderpest)</p>
S l i d e 1 2	<h3>Transmisión</h3> <p>Propagación del virus</p>	
S l i d e 1 3	<h3>Transmisión a los animales</h3> <ul style="list-style-type: none">• Contacto directo<ul style="list-style-type: none">– Secreciones nasales/oculares– Heces, orina, saliva y sangre• Ingestión oral de comida o agua contaminada• Fomites<ul style="list-style-type: none">– Vestimenta y equipo contaminado  <p><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Rinderpest virus is mainly transmitted or spread by direct or close contact with infected animals. Virus is shed in nasal and eye secretions and in feces, urine, saliva and blood. To a lesser degree, oral ingestion of contaminated food or water can transmit RPV. In addition, contact with fomites or contaminated objects like clothing and equipment can cause indirect spread, but this is not common because the virus does not survive in the environment very long. (Photo: FAO)</p>
S l i d e 1 4	<h3>Transmisión a los animales</h3> <ul style="list-style-type: none">• Transmisión por aerosol<ul style="list-style-type: none">– Solamente a distancias muy cortas• Periodo más infeccioso<ul style="list-style-type: none">– De 1 a 2 días antes de presentarse los síntomas clínicos– De 8 a 9 días después del inicio de los síntomas clínicos <p><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Aerosol transmission of RPV occurs but only for very short distances. The most infectious period is 1 to 2 days before the onset of clinical signs and then up to 8 or 9 days after onset of clinical signs. Transmission via insect vectors is not known to occur. No chronic carrier state exists and rinderpest virus does not persist in wild populations without the presence of susceptible cattle.</p>



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S l i d e 1 5	<h3>Transmisión a los animales</h3> <ul style="list-style-type: none">• Se desconoce si existe la transmisión por vector• No existe estado de portador crónico• La fauna silvestre no constituye un reservorio a menos que los bovinos adquieran la infección <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Aerosol transmission of RPV occurs but only for very short distances. The most infectious period is 1 to 2 days before the onset of clinical signs and then up to 8 or 9 days after onset of clinical signs. Transmission via insect vectors is not known to occur. No chronic carrier state exists and rinderpest virus does not persist in wild populations without the presence of susceptible cattle.</p>
S l i d e 1 6	<h3>Animales con peste bovina</h3>	
S l i d e 1 7	<h3>Síntomas clínicos</h3> <ul style="list-style-type: none">• Lapso de tiempo desde la exposición hasta la aparición de síntomas de la enfermedad – Generalmente de 4 a 5 días• Cuatro formas<ul style="list-style-type: none">– Clásica– Hiperaguda– Subaguda– Atípica  <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>The time from exposure to the development of disease (incubation period) and clinical signs vary with the strain of virus, dosage and route of exposure. Following natural exposure to the virus, the time until an animal shows illness ranges from 3 to 15 days but is usually 4 to 5 days. Clinically, RPV can occur in four different forms: the classic form, the peracute form, the subacute form, and the atypical form. (The photo depicts a cow that is unable to stand due to infection with rinderpest; source: Newsletter of the Tropical Medicine Association)</p>
S l i d e 1 8	<h3>Forma clásica de la peste bovina</h3> <ul style="list-style-type: none">• Fiebre, abatimiento, pérdida de apetito• Estreñimiento seguido de diarrea hemorrágica• Descarga nasal/ocular• Úlceras y llagas abiertas en la boca – Babeo• Deshidratación• Muerte en un lapso de 6 a 12 días  <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>The classic form of Rinderpest virus is most common and consists of fever, constipation followed by watery diarrhea with blood, discharge from the eyes and nose, ulceration and raw/open sores in the mouth that causes drooling, enlarged lymph nodes, dehydration and death in 6 to 12 days. Photo shows erosions on the palate of a cow infected with rinderpest. (Photo of mouth: http://www.vetmed.ucdavis.edu/vetext/INF-DA/INF-DA_Rinderpest.html)</p>
S l i d e 1 9	<h3>Otras formas de peste bovina</h3> <ul style="list-style-type: none">• Hiperaguda<ul style="list-style-type: none">– Animales jóvenes– Fiebre alta– Muerte en un lapso de 2 a 3 días• Subaguda<ul style="list-style-type: none">– Síntomas clínicos leves con bajas tasas de mortalidad• Atípica<ul style="list-style-type: none">– Fiebre irregular, diarrea leve o inexistente– Inmunidad debilitada que conduce a infecciones secundarias  <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Peracute cases usually occur in young animals and are characterized by a very short course of the disease. These animals have a high fever and death typically occurs in 2 to 3 days. The subacute form of rinderpest virus infection shows mild clinical signs combined with low death rates. The atypical form is characterized by an irregular fever and mild or no diarrhea. Some animals will develop immunosuppression, which means that their immune system is weakened and they are not as able to fight off other diseases. This can lead secondary infections from other disease agents that would not normally cause disease. Photo of calf: P. Roeder at fao.org;</p>

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S l i d e 2 0	<p style="text-align: center;">Medidas a seguir</p> <p style="text-align: center;">Pónganse en contacto con su médico veterinario</p> <p style="text-align: center;">Detengan toda movilización de animales</p> <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>If you suspect rinderpest due to a rapidly spreading illness with fever and sudden onset that affects ALL ages of animals in less than one month's time, contact your veterinarian immediately and stop all animal movement.</p>
S l i d e 2 1	<p style="text-align: center;">La peste bovina en los seres humanos</p> <ul style="list-style-type: none">• El virus de la peste bovina no produce enfermedad en los seres humanos <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>Rinderpest is not known to cause disease in humans.</p>
S l i d e 2 2	<p style="text-align: center;">Prevención y control</p>	<p>There are various prevention and control methods that can be applied to rinderpest. These will be discussed next.</p>
S l i d e 2 3	<p style="text-align: center;">Prevención</p> <ul style="list-style-type: none">• No permitan que ningún animal sea retirado o devuelto a sus predios• No permitan el contacto entre sus animales y el ganado vecino<ul style="list-style-type: none">- Eviten el contacto a través de las cercas <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>To prevent rinderpest from entering your farm, all animal movement on and off your premise must be stopped. Eliminate direct contact between animals of neighboring operations, even across fence lines.</p>
S l i d e 2 4	<p style="text-align: center;">Control</p> <ul style="list-style-type: none">• No existe un tratamiento conocido• Cuarentena dentro de la explotación a los animales expuestos• Sacrificio de los animales afectados• Vacunación solamente si las autoridades lo ordenan• Las medidas preventivas son fundamentales <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>There is no known treatment for rinderpest virus infection; this, combined with the high rates of illness, accounts for the devastating nature of the disease. As soon as an outbreak is suspected, animals that were exposed to others with rinderpest must be quarantined. Infected and exposed animals will likely be slaughtered and this can account for significant economic losses. In addition to the prevention measures on the previous slide, the use of vaccination will be decided by the proper authorities and vaccination should only be used under the direction of these authorities. Because of the lack of effective treatment, preventative measures are of key importance.</p>

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S 1 i d e 2 5	<h3>Control</h3> <ul style="list-style-type: none">• Desháganse adecuadamente de los animales y material contaminados• La mayoría de los desinfectantes matan al RPV<ul style="list-style-type: none">– Hipoclorito de sodio<ul style="list-style-type: none">• Blanqueador doméstico al 3%– Carbonato de sodio<ul style="list-style-type: none">• Sosa comercial– Virkon® S <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	<p>The animals and contaminated materials will need to be disposed of properly. The rinderpest virus is killed by most common disinfectants. Regular household bleach is effective and adding 2 gallons of bleach to 3 gallons of water and mixing thoroughly will provide the correct dilution. Other common disinfectants such as sodium carbonate (soda ash) and Virkon® S are effective.</p>
S 1 i d e 2 6	<h3>Recursos adicionales</h3>	
S 1 i d e 2 7	<h3>Recursos en Internet</h3> <ul style="list-style-type: none">• Center for Food Security and Public Health<ul style="list-style-type: none">– www.cfsph.iastate.edu• Sitio Web de la Organización Mundial de Sanidad Animal (OIE)<ul style="list-style-type: none">– www.oie.int• USAHA Foreign Animal Diseases – The Gray Book<ul style="list-style-type: none">– www.vet.uga.edu/vpp/gray_book• Organización de las Naciones Unidas para la Agricultura y la Alimentación (FAO)<ul style="list-style-type: none">– www.fao.org <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	
S 1 i d e 2 8	<h3>Agradecimientos</h3> <p><i>La elaboración de esta presentación fue financiada con recursos aportados por la Risk Management Agency del USDA al Center for Food Security and Public Health de la Iowa State University.</i></p> <p> </p>	
S 1 i d e 2 9	<h3>Agradecimientos</h3> <p>Autores: Jamie Snow, MVZ, MSP Katie Steneroden, MVZ</p> <p>Coautor: Bryan F. Buss, MVZ</p> <p>Revisora: Danelle Bickett-Weddle, MVZ, MSP</p> <p style="text-align: right;"><small>Center for Food Security and Public Health Iowa State University 2006</small></p>	