## Papers identified during literature review

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|  | **Reference** | **Title** | **Description** | **Comment** |
| 1 | (Department of Veterinary Services, 1955) | Notes on Animal Diseases: VIII—Foot and mouth Disease | Overview of global FMD, from a British colony perspective situation with an emphasis on African context | Sparse information relating specifically to Kenya, little information about control programmes being implemented at this time |
| 2 | (MacOwan, 1956) | Department of Veterinary Services Annual Report 1955 | Brief description of current voluntary vaccination situation and risk posed by “African-owed cattle”. | Full document not available in British Library, information used from online abstract only. |
| 3 | (Beaton, 1956) | Summary of information on Foot and mouth disease in Africa south of the Sahara, 1951-55 | Describes the state of FMD in Africa following a questionnaire to sub-Saharan territories. | Gives relevant baseline information and one of the first apparent documents recording a regional situational analysis and interest in FMD from a pan-African organisation. |
| 4 | (MacOwan, 1957) | Department of Veterinary Services Annual Report 1956 | Brief description of government plans to support local production of vaccine production. | Full document not available in British Library, information used from online abstract only. |
| 5 | (MacOwan, 1958) | Department of Veterinary Services Annual Report 1957 | Annual government report of all public veterinary service activities in Kenya. | Describes first SAT 2 and C outbreaks in Kenya, including effect on trade and methods of control; and Wellcome’s donation to set up FMD research laboratory in Nairobi and current state of veterinary resourcing in country. Contains production data and information on number of disease outbreaks (of O and A as well) as well as vaccinations. |
| 6 | (MacOwan, 1960) | Kenya. Veterinary Department Annual Report, 1959 | Brief description of SAT 2 outbreak in Samburu. | Full document not available in British Library, information used from online abstract only. |
| 7 | (MacOwan, 1962) | Kenya. Veterinary Department Annual Report 1961 | One line about FMD in Kenya. | Full document not available in British Library, information used from online abstract only. |
| 8 | (Galloway, 1962) | Results of the use of two live attenuated strain vaccines, Rho 1 (SAT 2 type) and RV. 11 (SAT 1 type), in controlling outbreaks of Foot and mouth disease | First development and trials of SAT 1 and 2 vaccines, including field trials in Kenya and South Africa. | Not specifically about Kenya and little information about current situation regarding FMD control in Kenya within document. |
| 9 | (Anon, 1969b) | Republic of Kenya. Veterinary Department annual report 1966. | The incidence of Foot and mouth DISEASE (types O, A, and C) was generally higher than in previous years, and towards the end of the year there was an outbreak of SAT-2 infection | Full document not available in British Library, information used from online abstract only. |
| 10 | (Anon, 1969a) | Republic of Kenya. Department of Veterinary Services annual report 1967 | Annual government report of all public veterinary service activities in Kenya. | Description of logistics of how FMD research laboratory in Nairobi is running. |
| 11 | (Muriithi and Henderson, 1969) | Foot and Mouth Disease | Conference presentation detailing an overview of FMD, the history of FMD in Kenya including logistics of current vaccination programme and future policy plans. | Discuses vaccination programme and compares farming systems. No discussion about surveillance. |
| 12 | (Capstick, 1972) | Comparative regional epidemiology of foot and mouth disease and its effects on prophylactic measures | Conference report describing initiation and initial success of compulsory vaccination zone in Kenya 1968-1972 | Compulsory vaccination with stringent movement and quarantine controls seemed to be largely effective (although some outbreaks still occurred). Outbreaks detected through compulsory reporting by farmers. Government was planning some serosurveys etc to improve surveillance. |
| 13 | (Department of Veterinary Services Kenya, 1974) | Annual report, 1971 | Describes outbreaks in Compulsory vaccination Zone | Full document not available in British Library, information used from online abstract only. |
| 14 | (Anderson et al., 1974) | The Foot and mouth disease virus subtype variants in Kenya | Maps the strains and subtypes in Kenya to understand how they are related to each other | Concludes that most of the genetic diversity ion strains due to antigenic drift rather than recombination, correlates with geographical distributions as well. describes the vaccination programme and its success in 60s and 70s. Different serotypes have different characteristics - O and SAT 2 have distinct geographical distribution, A is more variable and geographically less distinct, C more conserved. |
| 15 | (Anon, 1974) | Zoo-sanitary situation and disease control methods used in Kenya in 1973 | Brief overview of current FMD situation in Kenya, 1973 | FMD is controlled but still there, incursions happening in compulsory vaccination zone. |
| 16 | (Metson, 1975) | Discussion of the base line survey for the evaluation of the Foot and mouth disease control programme in Narok and Kajiado Districts | Evaluation in advance of the implementation of Phase three of the Compulsory Vaccination Programme. | Describes the socioeconomic demographics of Maasai communities in Kajiado and Narok |
| 17 | (Chema, 1975) | Vaccination as a method of Foot and mouth disease control: An appraisal of the success achieved in Kenya, 1968-1973 | Describes the compulsory vaccination Programme in Kenya, up until the third phase | Compulsory vaccination is working. It is also changing the balance of FMD strains. The third phase is about to be instigated and is massive and, in a pastoralist, rather than commercially-farmed area. |
| 18 | (Anderson et al., 1976) | The role of sheep and goats in the epizootiology of Foot and Mouth Disease in Kenya | Experimental infection of goats and serosurvey of goats and sheep in the field | Conclude that sheep and goats don't play significant role in epidemiology of FMD and vaccination is not necessary as part of control programme |
| 19 | (Muriithi, 1976) | Foot and Mouth Disease in Kenya | Overview of FMD vaccination programme in Kenya, including proposed national benefits. | Very similar content to (Muriithi and Henderson, 1969). |
| 20 | (Chema and Rweyemamu, 1978) | Selection of SAT 2 Foot and mouth disease vaccine strains for East Africa | Identification of SAT 2 strains for vaccination | Spatiotemporal information about SAT 2 outbreaks |
| 21 | (Paling et al., 1979) | The occurrence of infectious diseases in mixed farming of domesticated wild herbivores and domestic herbivores, including camels, in Kenya. I. Viral diseases: a serologic survey with special reference to Foot and mouth disease | Serosurvey in a ranch that has domestic cattle, goats and sheep as well as buffalo, camels, eland and oryx. | Cattle and Buffalo main species where seroconversion had occurred. |
| 22 | (Anderson et al., 1979) | The pathogenesis of foot-and-mouth disease in the African buffalo (*Syncerus caffer*) and the role of this species in the epidemiology of the disease in Kenya | Demonstrating transmission of virus between Buffalo and cattle experimentally and in the wild | Buffalo not important in transmission of disease, although transmission may occur rarely. |
| 23 | (Ngulo, 1980) | Strategies and costs of animal disease control with indications for research on Foot and mouth disease | Overview of control strategy in Kenya in 1980 with breakdown of costs and number of vaccinations in campaign. | Contains an initial discussion of intangible benefits from FMD control. Indicates at the expense and resources required for FMD control and difficulties of control in Africa |
| 24 | (Crees, 1982) | A brief administrative history of Foot and mouth disease and its control in Kenya | A history and description of the compulsory vaccination programme, with evaluation and recommendations. |  |
| 25 | (Ngichabe and Chema, 1982) | Effect of vaccination on the incidence of FMD in Kenya, 1960-1980 | Describes vaccination campaign of 1960 to 1980, with statistics strains and vaccination types | Vaccination has reduced FMD incidence although overall country level incidence hasn't changed. The main difficulty is when vaccines stop matching - either because of antigenic drift or incursion of a new strain from a different region. |
| 26 | (Ndeti et al., 1982) | The performance of FMD vaccines in Kenya | Describes the mechanism of vaccine production in Kenya in 1960s and 70s. | Discusses the need for good collaboration between vaccine production and surveillance for effective control |
| 27 | (Ndiritu et al., 1983) | A serological evaluation of 1979-1982 Kenyan foot-and-mouth disease type SAT 2 viruses | Serological characterisation of SAT 2 potential vaccine targets | Control of antigenic drift in Kenya could be controlled with strategic vaccine matching to strains identified |
| 28 | (Rweyemamu, 1984) | Foot and mouth disease control strategies in Africa | FMD control throughout Africa 1950-80 | Summary of CPV in Kenya. Discussed resource requirements for local laboratories and vaccine matching |
| 29 | (Kimengich, 1988) | Technical consultation on animal health problems in selected African countries. Kenya. | Overview of the current situation of all relevant livestock disease in Kenya. | Implied that vaccination is effective. Discusses privatisation of veterinary services as government resources are insufficient for livestock associated activities. |
| 30 | (Munyua et al., 1991) | An outbreak of Foot and mouth disease, and its socio-economic effects, in a herd of pigs in Nairobi, Kenya. | Description of an outbreak on a pig farm | The outbreak was unusual (or unusual that it is reported) and expensive. Likely that FMD circulating in national pig herd. |
| 31 | (Kitching, 1998) | A recent history of foot-and-mouth disease | Review of international FMD historical status in each region and recent epidemiological advances | Some focus on the Kenyan control programme. |
| 32 | (Hunter, 1998) | Vaccination as a means of control of Foot and mouth disease in sub-Saharan Africa | Top-line overview of vaccination in Africa to control FMD | Technical description of how vaccine programmes can work but no socioeconomic component. |
| 33 | (Mulei et al., 2001) | Short-term economic impact of Foot and mouth disease outbreak in a large Diary Farm in Kiambu District, Kenya | Describes the economic losses following an FMD outbreak on a farm with around 100 milking cows plus pigs | Description of control procedures in operation at the time of the outbreak and causes of direct and indirect losses. |
| 34 | (Vosloo et al., 2002) | Review of the status and control of Foot and mouth disease in sub-Saharan Africa | Overview of FMD status in sub-Saharan Africa with serotype analysis and attention to role of wildlife. | Focus on benefits of international trade and wildlife reservoirs |
| 35 | (Sahle, 2004) | An epidemiological study on the genetic relationships of Foot and mouth disease viruses in East Africa | Evolution of SAT and O serotype FMD viruses across East Africa - | Discusses requirement for regional control. |
| 36 | (Vosloo et al., 2004) | Molecular epidemiological studies of Foot and mouth disease virus in sub-Saharan Africa indicate the presence of large numbers of topotypes: implications for local and international control | Overview of strains of FMD over whole sub-Saharan African region. Historical analysis of strain and topotype. | Useful discussion about dispersion and distribution of strains |
| 37 | (Kanyari and Wandaka, 2005) | A qualitative risk assessment of Kenya for Foot and mouth Disease (FMD) for purposes of exportation of cooked pork frankfurters to USA. | Qualitative discussion of risk of FMD to USA if pork sausages exported from Kenya | Discussion of commodity-based trade. Article is not unbiased. |
| 38 | (Sangula et al., 2005) | Detection of multiple serotypes of foot and mouth disease virus in stored isolates and the implications for control of the disease in Kenya | Reanalysing historical FMD samples using ELISA techniques | Sensitive detection methods allow efficient vaccine matching and deeper understanding of epidemiology, especially if testing of livestock and wildlife more extensive (surveillance). |
| 40 | (Kimani et al., 2005) | Financial impact assessment of Foot and mouth Disease in large scale farms in Nakuru district, Kenya. | Describes the direct cost of disease for four farms in Nakuru due to an FMD outbreak | Discusses vaccine matching, sum of direct costs and description of some indirect costs. |
| 41 | (Sahle et al., 2007) | Study of the genetic heterogeneity of SAT-2 Foot and mouth disease virus in sub-Saharan Africa with specific focus on East Africa | Study evaluating the genetic and temporal diversity of SAT 2 isolates from East African countries. | Concludes that disease (affecting livestock) is maintained in livestock rather than wildlife. Discusses logistics of regional control. |
| 42 | (AU-IBAR, 2009) | Pan African Animal Health Yearbook 2009 | Description of disease status of African Union member states | Contains disease statistics |
| 43 | (Balinda et al., 2010) | Diversity and transboundary mobility of serotype O Foot and mouth disease virus in East Africa: implications for vaccination policies | History of serotype O in east Africa using samples from Kenya and Uganda | Concludes that vaccination does not exert selection pressure on serotype O topotypes, but that appropriate matching has negatively affected vaccine effectiveness. |
| 44 | (Sangula et al., 2010) | Co-circulation of two extremely divergent serotype SAT 2 lineages in Kenya highlights challenges to Foot and mouth disease control | Characterise SAT 2 strains in Kenya | Regional surveillance needs discussed |
| 45 | (AU-IBAR, 2010) | Pan African Animal Health Yearbook 2010 | Description of disease status of African Union member states | Contains disease statistics |
| 46 | (Brangenberg and van Andel, 2011) | Exotic disease focus: clinical and epidemiological investigation to exclude foot and mouth disease in cattle | Describes two farm level outbreaks of FMD seen during an EUFMD training programme | Describes the logistics of the EuFMD real time training. |
| 47 | (Sangula et al., 2011) | Low diversity of Foot and mouth disease serotype C virus in Kenya: Evidence for probable vaccine strain re-introductions in the field. | Describes the interaction between field and vaccine strains of FMD serotype C. | Locally produced vaccine is probably responsible for reintroductions of Type C due to inappropriate vaccination. |
| 48 | (AU-IBAR, 2011) | Pan African Animal Health Yearbook 2011 | Description of disease status of African Union member states | Contains disease statistics |
| 49 | (Mariner et al., 2011) | Participatory epidemiology methods for foot and mouth disease surveillance | Introduces The Participatory Epidemiology Network for Animal and Public Health (PENAPH) | Describes how participatory epidemiology has been used in FMD programmes. |
| 50 | (FAO et al., 2012) | Development of a long-term roadmap for the progressive control of FMD in Eastern Africa, 2012-2022. Report of a workshop held in Nairobi, Kenya, 5-6 March | Description of status and aspiration of East African countries as regards the PCP-FMD with regional recommendations | Kenya is currently at stage one, aiming to progress to stage 2 in 2015 and stage 3 in 2020. |
| 51 | (AU-IBAR, 2012) | Pan African Animal Health Yearbook 2012 | Description of disease status of African Union member states | Contains disease statistics |
| 52 | (Chepkwony et al., 2012) | Seroprevalence of Foot and mouth disease in the Somali eco-system in Kenya | Describes high FMD seroprevalence in somali-ecosystem of Kenya | Discusses importance of integrating local context and opinions into regional control measures |
| 53 | (Onono et al., 2013) | Constraints to cattle production in a semiarid pastoral system in Kenya | Exploring the Maasai perception of livestock disease | FMD is common and has a significant effect on livelihoods |
| 54 | (Ferguson et al., 2013) | Evaluating the potential for the environmentally sustainable control of Foot and mouth disease in Sub-Saharan Africa | Integration of PCP to development and conservation objectives | Describes elements necessary to combine ecological and disease control goals |
| 55 | (Kibore et al., 2013) | Foot and mouth disease sero-prevalence in cattle in Kenya | Sero-survey for FMD in Kenya using samples collected for rinderpest surveillance. | Geographic diversity in prevalence (thought to be due to level of previous vaccination), average in country of ~53%. |
| 56 | (Namatovu et al., 2013) | Laboratory capacity for diagnosis of Foot and mouth disease in Eastern Africa: Implications for the progressive control pathway | Survey of FMD laboratories in the East Africa area to understand capacity for surveillance and diagnosis | Kenya has some of the better facilities in the region but there are still problems, especially in surveillance and submission to reference laboratory |
| 57 | (Wekesa et al., 2014a) | A serological survey for antibodies against Foot and mouth disease virus (FMDV) in domestic pigs during outbreaks in Kenya | The role of pigs in endemic FMD spread | Pigs may be reservoir of disease in Kenya and a potential source of outbreaks in cattle |
| 58 | (Bari et al., 2014) | Genetic and antigenic characterisation of serotype A FMD viruses from East Africa to select new vaccine strains. | Identifying updated serotype A viruses that could be vaccine candidates in Africa | Required as historical strains used in vaccines may be hindering control |
| 59 | (Wekesa et al., 2014b) | Genetic diversity of serotype A Foot and mouth disease viruses in Kenya from 1964 to 2013; implications for control strategies in eastern Africa | Characterising serotype A virus in Kenya following an increase in outbreaks caused by it. | Describes when vaccine matching, regional vaccine use and surveillance has occurred and how this has affected the serotype A in Kenya |
| 60 | (AU-IBAR, 2014a) | Pan African Animal Health Yearbook 2014 | Description of disease status of African Union member states | Contains disease statistics |
| 61 | (Casey et al., 2014) | Patterns of Foot and mouth Disease Virus Distribution in Africa: The Role of Livestock and Wildlife in Virus Emergence | Overview of FMD throughout sub-Saharan Africa, especially focusing on livestock wildlife interactions. | Balance of conservation with FMD control, and why FMD control is difficult on African continent. |
| 62 | (AU-IBAR, 2014b) | Standard Methods and Procedures (SMPs) for control of Foot and mouth Disease (FMD) in the Greater Horn of Africa | Regional strategy document laying pout standard procedures for FMD surveillance and control in the horn of Africa | Comprehensive document used to create country-specific disease control programme. |
| 63 | (Wekesa et al., 2015a) | Analysis of recent serotype O Foot and mouth disease viruses from livestock in Kenya: Evidence of four independently evolving lineages | Serotype O outbreaks in Kenya 2010 and 2011 | Four independent strains causing outbreaks in Kenya over two years (O). Vaccination strategies not up to date / reflecting these strains (belonging to 2 topotypes). |
| 64 | (Wekesa et al., 2015b) | Characterisation of recent Foot and mouth disease viruses from African buffalo (*Syncerus caffer*) and cattle in Kenya is consistent with independent virus populations | Testing cattle and buffalo in Kenya for FMD | Most of FMD in Kenya likely to be due to infection from domestic livestock, not wildlife, and so this is where control efforts should be focussed |
| 65 | (Lyons et al., 2015) | Epidemiological analysis of an outbreak of Foot and mouth disease (serotype SAT2) on a large dairy farm in Kenya using regular vaccination | Describes the epidemiological characteristics of an FMD outbreak on a farm in Nakuru | "vaccines used on commercial dairy farms in Kenya are no effective  Need to understand why vaccines aren't effective - paper that advocates for field vaccine effectiveness trials  Need biosecurity plans - to prevent incursion and to control  Milder clinical signs among younger cows has implications for surveillance" |
| 66 | (Tekleghiorghis et al., 2016) | Foot‐and‐mouth disease transmission in Africa: implications for control, a review | Overview of serotypes in Sub-Saharan Africa and how they have changed over time, and an overview of the epidemiology of disease across the continent. | Useful integration of information from different countries and implications for control. |
| 67 | (Lloyd-Jones et al., 2017) | Genetic and antigenic characterization of serotype O FMD viruses from East Africa for the selection of suitable vaccine strain. | Identification of the best serotype O strain for vaccine production. | Emphases the importance of active surveillance and vaccine matching. |
| 68 | (Brito et al., 2017) | Review of the global distribution of foot‐and‐mouth disease virus from 2007 to 2014 | Overview of FMD serotypes circulating globally over 10 years, with some insight into implications for control. | Clear conclusion about the challenges facing FMD control in Africa |
| 69 | (Casey-Bryars et al., 2018) | Waves of endemic Foot and mouth disease in eastern Africa suggest feasibility of proactive vaccination approaches | Describes spatiotemporal pattern of FMD outbreaks in Tanzania, promoting ability to vaccinate proactively. | Results indicate that proactive and coordinated FMD control is possible |

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