



Australian Government
Inspector-General of Biosecurity

Horse importation biosecurity risk management

Review report No. 2018-19/02



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Review process

The purpose of this review was to examine how the Department of Agriculture and Water Resources manages the biosecurity risks of horse importation to Australia.

The scope of this review included:

- consideration of how the department had implemented Interim Inspector-General of Biosecurity (IIGB) recommendations to strengthen horse importation biosecurity, and
- the department's biosecurity risk management activities for horses imported between January 2016 and December 2017.

Potential risks considered as part of this review included:

- insufficient availability of departmental resources or capabilities to address relevant biosecurity risks
- possibility that momentum for implementation of previously recommended biosecurity measures may have waned over time.

The methodology used was to:

- review 14 IIGB audits of horse importation (conducted between 2008 and 2015), departmental responses to recommendations and records of actions against each recommendation
- review departmental data on horse imports in 2016 and 2017 and associated biosecurity risk management policies and processes
- visit horse-receiving facilities at Melbourne and Sydney international airports and post-arrival quarantine facilities at Mickleham, Victoria, and Canterbury Park, New South Wales, to observe current management practices and interview staff involved in handling imported horses and data entry, retrieval and interpretation
- conduct discussions with departmental and state government staff, industry representatives and other stakeholders
- develop a draft report with key findings and recommendations for departmental staff to review draft to check facts, correct any errors or misunderstandings and provide further evidence as necessary
- ask the Secretary to provide a management response to the findings and recommendations
- provide the final report to the Hon. David Littleproud MP, Minister for Agriculture and Water Resources, and
- publish the final report on the [IGB's completed audits and reviews](#) page.

Dr Naveen Bhatia and Glenn McMellon assisted me with this review.

Summary

Background

In August 2007 a major outbreak of equine influenza occurred in Australia. It spread from imported horses in the Eastern Creek Animal Quarantine Station in Sydney to other parts of New South Wales and Queensland. Over 47,000 horses on over 5,900 properties were affected. By July 2008 the disease had been eradicated, at a cost of over \$421 million (in 2007–08 dollars). The outbreak severely affected horse movements and the horseracing, horse breeding and equestrian industries.

In 2008 the Australian Government created the position of Interim Inspector-General of Horse Importation (IIGHI). This position became Interim Inspector-General of Biosecurity (IIGB) in 2009 and in 2016 was converted to Inspector-General of Biosecurity (IGB) under the *Biosecurity Act 2015*.

Between 2008 and 2015 the IIGHI and IIGB conducted 14 reviews and audits into departmental horse importation biosecurity risk management and made recommendations for improvement. Later audits in this period showed that the department had implemented nearly all previous recommendations satisfactorily. However, it did not implement the recommendation that it investigate state government records of horses kept within 1 kilometre of post-arrival quarantine facilities (to establish awareness and record the presence of non-quarantined horses near each facility) because it considered this distance excessive. A 2013 review of the import risk analysis for horses recommended a minimum 100-metre separation distance between horses in post-arrival quarantine and other horses, and the department implemented this.

Horse import requirements

Australian horse import conditions are designed to manage the risk of exotic equine diseases entering Australia. Australia assesses each country's animal health status and establishes import conditions specific to the biosecurity risk posed by that country. Horse imports are currently permitted from 25 approved countries or jurisdictions that are free from African horse sickness, glanders, dourine and Venezuelan equine encephalomyelitis. Of those, 23 countries or jurisdictions (all in the northern hemisphere) are not free of equine influenza. Horses from these countries must undergo at least 14 days offshore pre-export quarantine (PEQ) and a further 14 days post-arrival quarantine (PAQ). The United Arab Emirates is also not free of surra and horses from this country must undergo 21 days PEQ.

Australia manages the risk of glanders (a serious zoonotic disease) by requiring that horses from an unapproved country or jurisdiction spend at least 180 days in a glanders-free country before arrival. These horses must spend the last 60 days of that time in an approved country or jurisdiction and the 14 days immediately before export to Australia in a department-approved PEQ facility. Changes in disease status may lead to the department suspending a country's approved status.

The department has assessed Pacific-region countries New Zealand and New Caledonia for export of horses to Australia. Australia considers horses from New Zealand a lower biosecurity risk because it is free of equine influenza and other serious equine diseases. Consequently, horses from New Zealand are not required to complete PEQ or PAQ. Horses from New Caledonia must be vaccinated for equine influenza before export and subjected to *pre-export isolation* at a facility approved by the competent authority of New Caledonia. Each horse imported from both these countries requires an official clinical examination and certification before export and again on arrival in Australia.

Horse import biosecurity risk management in 2016 and 2017

From January 2016 to December 2017, 4,776 horses were imported into Australia. Of these:

- 898 (19 per cent) higher-risk horses arrived by air from approved northern hemisphere countries and were subject to PEQ and PAQ
- 3,870 (81 per cent) low-risk horses arrived by air from New Zealand
- 8 low-risk horses arrived by ship in Brisbane from New Caledonia.

Offshore pre-export quarantine

The horses arriving in Australia that were subject to PEQ came through facilities located in eight approved countries. PEQ facilities are approved by the department after it conducts a desktop audit of the facility's standard operating procedures manual, a site inspection and interviews with key personnel and reviews biosecurity and equine management procedures against a comprehensive checklist. The first approval stands for two years. The department then audits the facility after two years and again every four years. In 2016 and 2017 departmental veterinarians conducted offshore site audits of all approved PEQs and approved or re-approved most after rectification of recorded non-compliances. By December 2017 a few approvals had lapsed or not been finalised. Three biosecurity incidents in PEQs were reported to the department during the period and satisfactorily resolved.

Arrival at airports

Nearly all higher-risk horses entered Australia through First Point Animal Services (FPAS) at Melbourne Airport. FPAS is an excellent industry-built indoor receival facility used to facilitate biosecurity and horse management during horse transfer from air stalls to horse trucks for transport to a PAQ and during examination before release from biosecurity control. FPAS is subject to departmental approval, oversight and periodic audits.

New Zealand horses entered Australia mainly through Sydney Airport (55 per cent) and Melbourne Airport (36 per cent). Some consignments arrived in Brisbane and Perth. The corral at Sydney Airport is located outdoors next to the noisy main runway alongside associated biosecurity facilities. It is also used to facilitate transshipping of horses through Sydney Airport to other Australian cities or New Zealand and export of horses from Sydney, and it can become very cramped. This facility is deficient compared with FPAS in biosecurity and horse management. It may not meet first point of entry standards under Biosecurity Regulation 2016—due to come into effect in June 2019. Mainly low-risk horses enter through Sydney Airport, but adequate numbers of properly trained departmental staff are needed to inspect these horses before release.

Contingency plans to manage any significant equine biosecurity issue identified at an airport inspection following import from New Zealand and New Caledonia or in a horse in transit through Sydney airport are inadequate and should be strengthened on a state-specific basis.

Onshore post-arrival quarantine

The government-operated post-entry quarantine facility in Mickleham, Victoria, receives nearly all horses subject to PAQ. Two industry-run approved-arrangement sites also take horses for PAQ. These operate in accordance with detailed standard operating procedures under government supervision. At these sites—at Werribee, near Melbourne, and Canterbury Park, in Sydney—racehorses in PAQ can continue training while being fully segregated from non-quarantined horses. Both sites are busy racetracks but are not used for race meetings while horses are undergoing PAQ unless they have a department-approved management plan in place.

The department regularly audits all PAQ sites, and they appear to be well run. Management commitment, procedures, incident response measures and record keeping deliver a high level of biosecurity risk management.

Stakeholder communication

The department convenes the Horse Industry Consultative Committee to engage with industry on all aspects of horse import and export biosecurity management. Information from these meetings should be circulated to state and territory veterinary authorities and Animal Health Australia. Key staff at private PAQ facilities and other relevant stakeholders, including state government veterinary authorities, should meet at Mickleham every two years to reinforce awareness of and commitment to good biosecurity practice.

Conclusion

The biosecurity risks of importing horses into Australia were well managed in 2016 and 2017, and both the department and industry have a high commitment to preventing another incursion of equine influenza or any other serious equine disease. Nevertheless, continued attention to the rigorous implementation of biosecurity procedures pre-import and post-import must be maintained over the long term. Departmental biosecurity resources for managing horse arrivals into Sydney are stretched and should be supplemented rather than further eroded.

Recommendations and departmental responses

The full departmental response to the recommendations is at [Appendix A](#).

Recommendation 1

The department should continue to work with industry to ensure that the Sydney Airport horse receival facility meets Biosecurity Regulation 2016 first point of entry standards when the Regulation comes into effect in June 2019.

Department's response: Agreed.

The department has already conducted an assessment of the Sydney airport horse imports clearance facility against the new First Point of Entry Standards. The department will continue to work collaboratively to ensure the facility meets the Standards when they come into effect in June 2019.

Recommendation 2

The department should develop state-specific contingency plans for managing a significant equine biosecurity issue identified at an airport inspection when horses are imported from New Zealand and New Caledonia or are in transit.

Department's response: Agreed.

The department had already identified this as an issue and is developing a discussion paper and proposed contingency plan to manage any equine biosecurity incidents found during airport inspection. The department will continue to consult with industry and ensure state and territory governments are also appropriately consulted.

Recommendation 3

The department should ensure that adequate numbers of properly trained staff are available at all times to manage the biosecurity risks of arriving horses, particularly at Sydney and Melbourne airports.

Department's response: Agreed.

The department has undertaken targeted recruitment and training to ensure adequate staff are available at all times to manage biosecurity risks of arriving horses at airports, particularly Sydney and Melbourne.

Recommendation 4

The department should organise two-yearly meetings with relevant stakeholders to reinforce awareness of and commitment to good biosecurity practices in horse post-arrival quarantine management. It should also provide timely information about equine and other biosecurity issues to state and territory chief veterinary officers and Animal Health Australia.

Department's response: Agreed.

The department will pursue opportunities to implement additional meetings to involve stakeholders not already involved in the Horse Industry Consultative Committee (HICC), to reinforce awareness of and commitment to continued biosecurity in post arrival quarantine management.

The department will continue to ensure timely information is shared to the state and territory Chief Veterinary Officers and will include Animal Health Australia in information sharing activities.



Dr Helen Scott-Orr
Inspector-General of Biosecurity
18 September 2018

Chapter 1

Background and previous reviews

Background

Horses in Australia are used in racing, breeding, sporting activities, recreation, regulation (for example, as police horses), tourism, stock work and meat production (for pet food and meat exported for human consumption). Horseracing and horse breeding are multimillion-dollar industries that generate significant numbers of international horse movements.

In August 2007 a major outbreak of equine influenza occurred in Australia, spreading from imported horses in the Eastern Creek Animal Quarantine Station in Sydney to other parts of New South Wales and Queensland. Equine influenza affected over 47,000 horses on over 5,900 properties. It affected horse movements and the horseracing, horse breeding and equestrian industries. By July 2008 the disease was eradicated in Australia, at a cost of over \$421 million dollars (in 2007–08 dollars). The Australian and state and territory governments contributed funds to managing the outbreak, despite horse industry cost-sharing arrangements under the Emergency Animal Disease Response Agreement not being finalised at the time (Smyth, Dagley & Tainsh 2011).

In June 2008 the Australian Government accepted all 38 recommendations of the *Equine Influenza Inquiry report* (Callinan 2008). A key recommendation of the report was to establish the position of Inspector-General of Horse Importation. In 2008 the then Department of Agriculture, Fisheries and Forestry established the position of Interim Inspector-General of Horse Importation (IIGHI) pending necessary legislative change.

In June 2009 the Australian Government converted the IIGHI position to Interim Inspector-General of Biosecurity (IIGB). Dr Kevin Dunn was IIGHI from September 2008 to June 2009 and then IIGB from July 2009 to June 2013. Dr Michael Bond was IIGB from July 2013 to June 2016. The *Biosecurity Act 2015* came into force in June 2016 and the position was made permanent. Dr Helen Scott-Orr was appointed inaugural Inspector-General of Biosecurity (IGB) from 25 July 2016 to 24 July 2019.

Interim Inspector-General of Biosecurity audits and reviews

Between 2008 and 2015 the IIGHI and IIGBs conducted 14 audits and reviews into departmental management of biosecurity risks associated with horse importation and made 38 recommendations (Table 1). These audits are a valuable historical record of previous horse importation biosecurity issues and departmental management.

TABLE 1 Horse importation audits and reviews, 2008 to 2015

No.	Title	Date finalised	No. of recommendations
1	Report of the Interim Inspector-General of Horse Importation	April 2009	14
2	Import health certification for horses imported to Australia	November 2009	3
3	Quarantine surveillance following post-arrival quarantine for specified horses after importation to Australia	May 2010	10
4	Assessment of the Biosecurity Services Group internal audit of Sandown post-arrival quarantine facility	June 2010	3
5	Equine pre-export procedures in Singapore	July 2010	3
6	Pre-export procedures for horses from Japan	June 2011	0
7	Desktop review—the approval of offshore pre-export quarantine facilities for importing horses to Australia	December 2012	0
8	IIGB Audit of the Eastern Creek Animal quarantine station (Sydney, NSW)	April 2013	2
9	IIGB audit of the Werribee post-arrival quarantine facility (Melbourne, Victoria)	April 2013	2
10	Desktop review—the approval of offshore pre-export quarantine facilities for importing horses to Australia	June 2013	1
11	Arrangements for oversight of horse biosecurity risk management	March 2014	0
12	Horse imports: management of biosecurity risks June to November 2014	November 2014	0
13	Horse imports: management of biosecurity risks January to June 2015	February 2016	0
14	Horse imports: management of biosecurity risks July to December 2015	March 2016	0

Note: [Completed audits and reviews](#) are available on the Inspector-General of Biosecurity website.

Implementation of recommendations over time

Between March 2014 and March 2016 the IIGB conducted four desk audits assessing departmental progress in implementing recommendations from previous reports (2009–2013). These audits showed that the department had satisfactorily implemented most recommendations. The department did not implement the recommendation that it investigate state government records of properties with horses to establish awareness and record the presence of non-quarantined horses within 1 kilometre of each post-arrival quarantine facility because it considered the distance excessive. In 2013 a review of the import risk analysis for horses recommended a minimum 100-metre separation between quarantined and non-quarantined horses (DAFF 2013). The department implemented this recommendation.

In this review I have accounted for earlier IIGB findings and recommendations to ensure that the department continues to comprehensively implement biosecurity risk management processes necessary for horse importation. I consider that all recommendations are being implemented or have been superseded by changed arrangements at various facilities. For example, the Australian Government post-arrival quarantine facility at Mickleham, Victoria, replaced several quarantine stations when it opened in 2015 so some recommendations about specific facilities were no longer relevant.

Chapter 2

Horse import requirements

Diseases and pests of biosecurity concern

Australia imposes horse import conditions to manage the risks of many exotic equine diseases, including equine influenza. The list of target diseases at Table 2 was determined in the 2010 import risk analysis (Biosecurity Australia 2010) and its 2013 review (DAFF 2013).

TABLE 2 Horse diseases and pests of biosecurity concern

Organism	Disease/pest	Agent
Animal bacteria	Contagious equine metritis	<i>Taylorella equigenitalis</i>
Animal virus	African horse sickness	African horse sickness virus
	Equine herpesvirus abortion	Equine herpesvirus 1
	Equine arteritis	Equine arteritis virus
	Equine infectious anaemia	Equine infectious anaemia virus
	Equine viral arteritis	Equine viral arteritis
	Equine influenza (H7N7, H3N8)	Influenza A virus equine 1, 2
Animal, other micro	Dourine	<i>Trypanosoma equiperdum</i>
	Equine piroplasmiasis	<i>Babesia caballi</i> , <i>Theileria equi</i>
	Surra	<i>Trypanosoma evansi</i>
Zoonotic virus	Borna disease	Borna virus
	Equine encephalomyelitis	Equine viral encephalomyelitis
	Japanese encephalitis	Japanese encephalitis flavivirus
Zoonotic bacteria	Anthrax	<i>Bacillus anthracis</i>
	Epizootic lymphangitis	<i>Histoplasma farciminosum</i>
	Lyme disease	<i>Borrelia burgdorferi</i>
	Glanders	<i>Burkholderia mallei</i>
Livestock mite	Ticks	Various species
Livestock fly	Screwworm fly	<i>Chrysomya bezziana</i>
	New world screwworm fly	<i>Cochliomyia hominivorax</i>

Source: DAFF 2013

Country or jurisdiction approval

Australia approves countries or jurisdictions for horse imports after assessing them for presence of diseases of concern and adequacy of controls applied by competent authorities. The assessment process includes a detailed desktop assessment and a visit to the applicant country or jurisdiction.

Horse imports are approved from 25 countries and jurisdictions. Australia has assessed each one as being free from African horse sickness, glanders, dourine and Venezuelan equine encephalomyelitis (European Commission 2010; Gizaw, Megersa & Fayera 2017; Khan et al. 2012; Neubauer et al. 2005). Only two of the 25 are free from equine influenza, and all of the other 23 are in the northern hemisphere. Australia considers horses coming from any of these 23 approved northern hemisphere countries a higher biosecurity risk and requires them to have at least 14 days pre-export quarantine (PEQ) in an approved facility and a further 14 days post-arrival quarantine (PAQ) in an approved facility. Horses from the United Arab Emirates must undergo 21 days PEQ because this country is not free of surra.

Glanders is a serious zoonotic disease. To manage the risk of this disease entering Australia, horses to be imported from an unapproved country or jurisdiction must spend at least 180 days in a glanders-free country. They must spend the last 60 days of this time in an approved country or jurisdiction and the final 14 days in an approved PEQ facility immediately before export to Australia.

Changes in a country's health status may result in the department suspending it from the list of countries approved to export horses to Australia. For example, on 30 January 2015 Germany notified the World Organisation for Animal Health (OIE) of a case of glanders in a horse. The affected horse was identified through routine testing using a complement fixation test for export to the United States. The department suspended Australian approval for horses imported from Germany because it could no longer meet Australian import conditions. The department then implemented additional biosecurity measures for live horses and equine semen from Germany to manage the risk.

Germany provided the department with a report on its surveillance following the notification. Its investigation into the source of infection did not determine the cause of the outbreak, but all in-contact horses tested negative. The affected horse had been resident in Germany since birth. Germany collected six months of surveillance data, confirming no further cases of glanders. It also provided a report to the OIE and other trading partners, showing that it met OIE criteria for proof of freedom. The criteria are:

- glanders is notifiable in the country
- no case had been reported for at least six months
- a surveillance program was in place to demonstrate the absence of glanders in accordance with the OIE's general recommendations on animal health surveillance.

The department assessed the evidence provided in the report and concluded that Germany had managed the biosecurity risk. Trade resumed from 30 July 2015.

In October 2017 Australia suspended Hong Kong's approval to export horses due to potentially increased biosecurity risks arising from the movement of horses between Hong Kong and a proposed equine disease-free zone in China. China is not an approved country to export horses to Australia because the department has not conducted an assessment of China for this purpose. Before the suspension, the department asked Hong Kong for information about its biosecurity controls over these movements. It concluded that those controls did not provide the level of biosecurity assurance needed to meet Australia's appropriate level of protection.

Before it can lift the suspension, the department will conduct a competent authority assessment of Hong Kong and the ongoing biosecurity arrangements for use of the Guangdong equine disease-free zone. At present, horses from Hong Kong can enter Australia indirectly after spending a minimum of 180 days in a glanders-free country and the 60 days immediately before export in a country or jurisdiction approved to send horses to Australia.

Pacific-region countries New Zealand and New Caledonia are approved to export horses to Australia. Like Australia, New Zealand is a major importer of northern hemisphere horses, and has similar biosecurity risk management measures, including a similar list of approved countries and PEQ and PAQ standards, to Australia. The department's risk assessment concluded that horses imported from New Zealand do not need to complete PEQ or PAQ, but official clinical examination and certification before export and on arrival in Australia is required. Importers must provide details of contingency arrangements for post-arrival quarantine isolation in case of suspicion of an exotic disease. A reciprocal arrangement is in place for Australian horses entering New Zealand.

Horses imported from New Caledonia are not required to undergo PAQ. However, they must be vaccinated for equine influenza prior to the commencement of a pre-export isolation period at a facility approved by the competent authority of New Caledonia.

Table 3 shows the pre-export and post-arrival quarantine periods for horse imports to Australia from different approved countries, based on their equine disease status.

TABLE 3 Quarantine periods for horses imported from approved countries to Australia

Countries approved to export horses at December 2017	Diseases not present	Horse time in PEQ	Horse time in PAQ
United Arab Emirates	African horse sickness, dourine, glanders, Venezuelan equine encephalomyelitis	21 days	14 days
Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland (Republic of), Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland and United Kingdom North America: Canada and United States Asia: Japan, Macau and Singapore	African horse sickness, dourine, glanders, Venezuelan equine encephalitis, surra	14 days	14 days
New Caledonia	African horse sickness, dourine, glanders, Venezuelan equine encephalomyelitis, surra	14 days ^a	0 days
New Zealand	African horse sickness, dourine, equine influenza, glanders, Venezuelan equine encephalomyelitis, surra	0 days	0 days

^a pre-export isolation. **PAQ** Post-arrival quarantine. **PEQ** Pre-export quarantine.

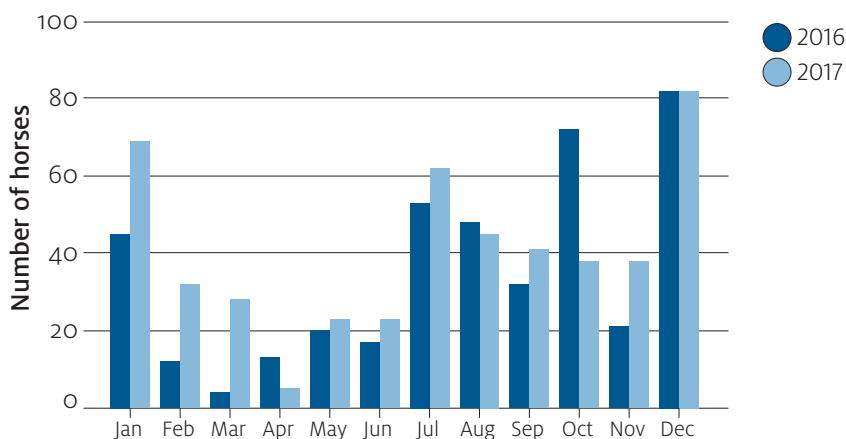
Chapter 3

Handling horse imports in 2016 and 2017

From January 2016 to December 2017, 4,776 horses were imported into Australia. Of these, 898 (19 per cent) higher-risk horses arrived from approved northern hemisphere countries after undergoing pre-export quarantine (PEQ) at approved facilities—mostly in late winter, spring and summer—to meet major racing, breeding and sale events (Figure 1).

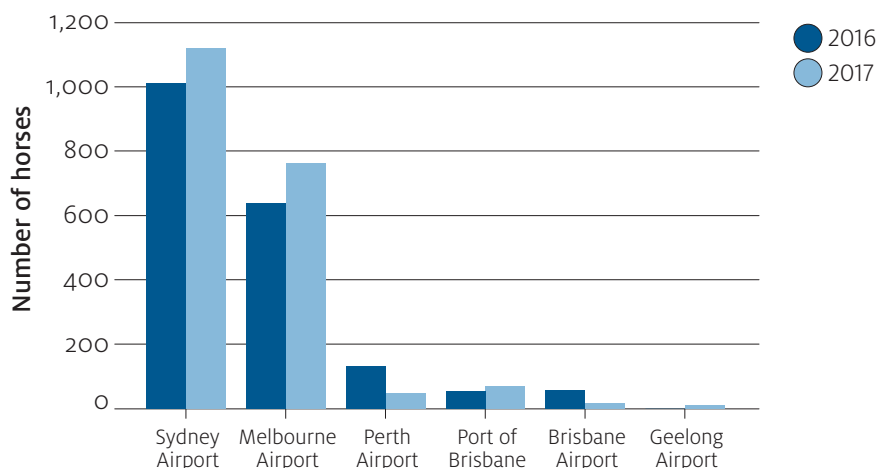
Most horses from the northern hemisphere underwent PEQ in the United Kingdom (49 per cent) and Germany (30 per cent). The remainder travelled through PEQ facilities in other approved countries—Hong Kong (suspended in October 2017), Ireland, Japan, Singapore, the United Arab Emirates and the United States. Almost all entered through Melbourne Airport.

FIGURE 1 Horses imported into Australia subject to post-arrival quarantine, 2016 and 2017



Between January 2016 and December 2017, 3,870 (81 per cent) imported horses arrived from New Zealand (Figure 2) and 8 horses arrived from New Caledonia. Most NZ horses entered through Sydney (55 per cent) and Melbourne (36.2 per cent) airports (Figure 2), and the horses from New Caledonia arrived by ship through the Port of Brisbane. In 2016, 1,165 horses arrived at Sydney Airport from New Zealand in 155 consignments and, in 2017, 1,247 horses arrived in 123 consignments.

FIGURE 2 Horses arriving in Australia from New Zealand, by port, 2016 and 2017



Approval of offshore pre-export quarantine facilities

The department audits and approves offshore PEQ facilities for northern hemisphere horses after performing a desk audit of the standard operating procedures manual and reviewing maps and diagrams. If the desk audit is satisfactory, departmental veterinary auditors undertake a site audit, interview key personnel (government official veterinarians, operators and staff) and comprehensively review standard operating procedures for the site. These procedures must include measures to ensure:

- staff have showered on arrival at the facility
- quarantine and other horses are a minimum of 50 metres apart at all times and for the entire PEQ period, and
- horse clinical observation and testing implementation meets Australian import protocols.

Initially, PEQ facilities are approved for two years and the department completes further on-site audits as required. Facilities that comply with Australian requirements are then audited every four years, and standard operating procedure manuals are subject to regular desk audits.

Between 2016 and 2017 departmental veterinarians conducted offshore on-site audits to approve or re-approve PEQs after rectification of any previously identified non-compliances. Table 4 shows issues identified during site visits. Most were minor and remediation was a condition of continued approval of the facility.

TABLE 4 Issues identified during audits of offshore quarantine facilities, 2016 and 2017

Category	Issue
Documentation	<ul style="list-style-type: none"> • Incomplete records of new and cleaned equipment, and timing of cleans • Written agreements from all personnel to abide by conditions of entry to the PEQ not available in the files provided on day of audit • Health charts not completed or signed • Declaration forms not signed • Affidavit had been pre-signed by accredited vet • Entry documents not signed or initialled
Treatment	<ul style="list-style-type: none"> • Horses treated without permission from official veterinarian or the department • Horse temperatures not taken at 8-hour intervals
Stable management	<ul style="list-style-type: none"> • Treatment of exposed wood in PEQ compound needed to avoid contamination between consignments • Use of non-approved disinfectant • Untreated wood identified at the top of the rubber that covers stable floors and walls • Two stables that fall within the 50-metre exclusion zone • Neighbouring property falls within 50-metre exclusion zone • Fence not installed to stop horses breaching 50-metre exclusion zone where front of property meets public road • Wooden panels on doors eaten away by horses to reveal bare wood

PEQ Pre-export quarantine.

Three biosecurity incidents in PEQ were reported to the department and satisfactorily resolved (Table 5).

TABLE 5 Biosecurity findings in pre-export quarantine facilities, 2016 and 2017

Date of incident	Finding	Location	Time for resolution
May 2016	2 horses Blood on post-race endoscopy Right-fore lame	Hong Kong	14 days
August 2017	Positive equine viral arteritis titre	United Kingdom	8 days
October 2017	Nasal discharge	United Kingdom	5 days

Horse import approval and clearance

Importers applying for permits to import horses from approved countries other than New Zealand and New Caledonia must name the facility and address for the consignment PEQ. Importers often decide which horses will be in the consignment only a day or so before PEQ starts due to last-minute commercial considerations and/or results of pre-screening health tests. Technical requirements for horse imports are complex, so several different sections of the department check and approve different steps of the process to avoid hold-ups once horses are in transit. Importers and different departmental sections communicate repeatedly and regularly throughout the process.

Importers must submit an online import permit application form for each consignment of horses through the departmental BICON system for assessment by the Import Services Team, Biosecurity Operations Division. They must also make provisional bookings for veterinary clearance and horse PAQ in Melbourne or Sydney and provide specialised veterinary 'horse program' staff in Biosecurity Animal Division with a spreadsheet that includes details of each horse that will enter PEQ. Horse program staff check that:

- required horse details have been submitted and are consistent with import conditions
- required information about the permit, country of origin and the PEQ facility and its associated official veterinarian is consistent with departmental PEQ approvals
- transport route is approved and transits/transhipments are through approved ports only.

Horse program staff then grant the import permit in BICON, which is valid for two months. They email the official permit approval through BICON to the importer. Horse program staff also confirm completion at every step by email to the importer and to departmental regional veterinary operations staff in Melbourne or Sydney, who will be responsible for clearing the consignment for import at the airport following arrival, and for horse inspections during PAQ.

Once horses enter the offshore PEQ facility, the official veterinarian or competent authority (depending on the country) updates horse program staff on the status of the horses and contacts them if horses in PEQ require treatment or show any sign of a disease of biosecurity concern. Towards the end of the PEQ period, the importer provides details of all horse treatments, testing and results to the veterinary staff in Melbourne or Sydney. A veterinary officer assesses all documentation before issuing a determination of evidence form and advising the importer via email that the horses meet import conditions based on the information provided. Imported horses arrive in Australia with approved documents and a health certificate from the exporting country. After the horses are transferred to the PAQ facility, a departmental veterinary officer rechecks this documentation for compliance with import conditions.

Biosecurity management of horses at Melbourne Airport

Horses subject to PAQ are mainly imported through Melbourne Airport First Point Animal Services (FPAS). FPAS is an industry-built, advanced indoor receipt site for handling imported horses while they are inspected for transfer to PAQ or release from biosecurity control. FPAS operates as a class 1.2 (air cargo terminal) approved-arrangement site and is subject to regular departmental audits. The facility is well designed and managed, and it has high standards of cleanliness and disposal for all biosecurity waste material that arrives with, is generated by or comes into contact with horses subject to biosecurity clearance. Personnel shower when moving between clean and potentially contaminated areas, and segregation facilities are good. Authorised personnel have security card access and the facility uses 24-hour closed-circuit television monitoring.

On arrival at the airport, horse air stalls are unloaded from the aircraft and driven the short distance into the FPAS. The building is quiet when the doors are closed. The horses are unloaded and walked gently. They are then inspected by two biosecurity officers, one of whom must be fully trained and accredited for horse handling and biosecurity examination. Groom's personal belongings and equipment are also inspected.

FPAS staff move horse air stalls to a wash area for cleaning and disinfection as soon as practicable after horses have been unloaded. Some stalls are moved off site in an enclosed truck/taut liner to a department-approved location for cleaning and disinfection. Before moving the stalls, staff close them by turning flaps down and then apply biosecurity tape to enclose all biosecurity risk material.

After initial inspection at FPAS, horses subject to PAQ are transported to the Mickleham or Werribee PAQ facilities. Horses from New Zealand are released from biosecurity control to importers and transported directly to their destinations.

Biosecurity management of horses at Sydney Airport

Most horses arriving at Sydney Airport are imported from New Zealand so are not subject to PAQ. A few higher-risk racehorses imported from northern hemisphere countries or jurisdictions undergo PAQ at Canterbury Park. Sydney Airport is a major hub, so many horses transit or are transhipped to a third country or another Australian airport. Transiting horses remain on the aircraft and transhipped horses are offloaded and reloaded in their air stalls onto the same or a different aircraft for their onward journey.

Two qualified biosecurity officers must be in attendance to supervise any flight with transiting horses while the plane is on the tarmac. They ensure removal of people or waste from the plane is managed in accordance with biosecurity requirements. These aircraft can be at the airport from two to five hours. During 2016, 353 northern hemisphere horses in 27 consignments transited through Sydney Airport to New Zealand and in 2017 numbers increased to 380 horses in 31 consignments.

Horses imported from New Zealand generally meet Australian import conditions in full. Any horses (and associated equipment) unloaded are inspected by two biosecurity officers. At least one must be a veterinarian and both must be internally accredited by the department in horse handling and examination. Once cleared, horses are released from biosecurity control to their importer.

Imported horses arriving at Sydney Airport are inspected at an open-air corral in the airport precinct. This corral is next to a busy road and noisy main runway approach. Horses emerging from aircraft may be startled by noise and bright sunlight. This can make them difficult to handle, leading to potential workplace health and safety concerns. Biosecurity segregation and shower-out facilities appear cramped and difficult to fully assure.

The Sydney Airport corral is deficient in biosecurity and horse management facilities especially when compared with that in Melbourne. However, industry have put in place operational measures to try to manage these issues. An indoor facility would be preferable.

In April 2017 a departmental internal audit examined inspection and clearance procedures and documentation for NZ horses at the Sydney Airport corral. It found:

- lack of contingency arrangements for holding horses in case of non-compliance
- congestion in the corral due to multiple vehicles picking up only one or two horses
- lack of adequate lighting for effective inspection
- incomplete verification (for example, a veterinary kit did not have a biosecurity seal).

Under the Biosecurity Regulation 2016, airport operators and aviation industry participants who are managing an area in a first point of entry for facilitating the arrival of live animals must have specified minimum procedures and infrastructure in place to manage biosecurity risks by June 2019.

Recommendation 1

The department should continue to work with industry to ensure that the Sydney Airport horse receival facility meets Biosecurity Regulation 2016 first point of entry standards when the Regulation comes into effect in June 2019.

Department's response: Agreed.

The department has already conducted an assessment of the Sydney airport horse imports clearance facility against the new First Point of Entry Standards. The department will continue to work collaboratively to ensure the facility meets the Standards when they come into effect in June 2019.

The department requires importers to have a contingency plan in place for all NZ horse transits in case of an extended delay to the outgoing flight. However, they are not required to have such a plan in place in case an in-transit or transhipped horse presents signs of a disease at any airport.

The department has prepared a draft contingency plan for management of any horse from New Zealand or New Caledonia that arrives in Australia showing clinical signs of a disease that may be of biosecurity concern. Under the plan, horses would be held at the airport on transport vehicles converted to stalls for observation for up to two days while laboratory testing is carried out. If this occurred at Melbourne Airport, the horse could probably be transferred to Mickleham to be held in isolation. If this occurred at Sydney Airport, it would likely disrupt other horse imports, exports or transhipments due to the volume of horses that pass through Sydney.

The only approved PAQ facility in New South Wales is a private facility at Canterbury Park. The operators would be reluctant to house a suspect horse because it also operates as a pre-export isolation facility for horses undergoing export health certification. For most of the year it operates as a non-quarantined racetrack, affecting its ability to hold a potentially diseased horse without cancelling race meetings.

The department would need to negotiate permission from the NSW Department of Primary Industries before it could instruct an importer to move a suspect horse to another facility.

Recommendation 2

The department should develop state-specific contingency plans for managing a significant equine biosecurity issue identified at an airport inspection when horses are imported from New Zealand and New Caledonia or are in transit.

Department's response: Agreed.

The department had already identified this as an issue and is developing a discussion paper and proposed contingency plan to manage any equine biosecurity incidents found during airport inspection. The department will continue to consult with industry and ensure state and territory governments are also appropriately consulted.

In 2015 the department opened its post-entry quarantine facility at Mickleham, Victoria. Before then, Sydney Airport received NZ horses and horses destined for PAQ at the Eastern Creek Animal Quarantine Station. Departmental Sydney staff included the 30-strong Horse Task Force of specially trained veterinarians and biosecurity officers. They managed all aspects of horse importation biosecurity control, including workplace health and safety. After the Mickleham facility opened, this specialised Sydney workforce was greatly reduced and Mickleham PAQ staff numbers were increased.

However, official veterinarians and biosecurity officers with expertise in horse health and handling still have significant workload in Sydney. They manage inspection of the large numbers of horses imported from New Zealand, of horses transiting through Sydney Airport and of horses undergoing PAQ at the Canterbury Park site. They regularly work outside normal hours depending on when flights arrive. The reduction in specialised staff in Sydney has led to operational problems due to lack of availability of suitable staff to conduct horse inspections. Staff numbers should be increased to ensure availability of properly trained departmental staff to ensure biosecurity control by inspecting horses before they leave the airport.

Recommendation 3

The department should ensure that adequate numbers of properly trained staff are available at all times to manage the biosecurity risks of arriving horses, particularly at Sydney and Melbourne airports.

Department's response: Agreed.

The department has undertaken targeted recruitment and training to ensure adequate staff are available at all times to manage biosecurity risks of arriving horses at airports, particularly Sydney and Melbourne.

Onshore post-arrival quarantine

After horses from approved countries are transferred from the airport, they must spend at least 14 days in a PAQ facility. This commences after the last horse in the consignment arrives. Most horses undergo PAQ at the department-managed facility at Mickleham. It was built to replace the Eastern Creek Animal Quarantine Station (New South Wales) and the Spotswood Animal Quarantine Station (Victoria). The state-of-the-art Mickleham facility has two compounds so that two separate consignments of up to 40 horses can be completely segregated. It also has separate quarantine facilities for imported alpacas, bees, birds, cats, dogs and plants.

Horses imported for racing may spend the mandatory 14 days post-arrival quarantine period in one of the two other facilities approved under the *Biosecurity Act 2015* for live horse importation (approved-arrangement sites, class 7.12)—the Werribee International Horse Centre (Victoria) and the Canterbury Park International Horse Centre (New South Wales). Both facilities have racetracks that can be used to exercise imported horses. For this reason the tracks are not routinely used for racing while horses are undergoing PAQ. A management plan must be approved by the department to allow a race meeting to coincide with a PAQ period.

Within 24 hours of a horse's arrival at the PAQ facility, a private veterinarian (approved and supervised by the department) checks identity and health and takes blood samples. For a consignment of horses imported from different PEQ facilities, a veterinarian takes nasopharyngeal swabs to test for equine influenza by polymerase chain reaction (PCR) within 24 hours of arrival, within four to six days of arrival and again within four days before release. For horses from a single PEQ facility, swabs are taken within the first four to six days of arrival and again within four days of release. For the entire time horses are in PAQ, veterinarians take their temperatures twice daily at intervals of at least 8 hours. They examine the horses as required and shortly before release from biosecurity control.

Table 6 shows the number of horses imported into PAQ facilities in 2016 and 2017.

TABLE 6 Imported horses in post-arrival quarantine, Australia, 2016 and 2017

Facility	2016	2017
Mickleham, Victoria	393	448
Werribee, Victoria	25	26
Canterbury Park, NSW	1	5
Total	419	479

All three PAQ facilities appear to be well set up and competently run by knowledgeable, dedicated and experienced staff. Staff are committed to management procedures, incident response measures and record keeping to deliver the best biosecurity risk management. Approval and audit processes for the PAQ facilities seemed satisfactory. Compliance levels in the operation of the facilities appeared high and staff interviewed had excellent knowledge of procedures.

The department audits the Canterbury Park and Werribee sites against criteria for approved-arrangement class 7.12 (horses) facilities and their approved standard operating procedures manuals. Facilities that fail an audit are subject to probation periods at a higher audit level, and repeated failures may lead to the to the department suspending or revoking approval. The Mickleham facility is subject to internal audit, and the department puts in place measures necessary to remedy any non-compliances identified.

Between January 2016 and December 2017, the department conducted an on-site audit on each of the three PAQ facilities to:

- determine compliance with instructional material and relevant import conditions
- identify gaps and advise on corrective actions
- examine the adequacy of facilities and procedures to effectively and efficiently manage biosecurity risks associated with imported horses.

The audits focused on the methods in place for record keeping for biosecurity goods, storage, waste disposal procedures, traceability, hygiene and handling procedures for biosecurity goods and materials. The department also assessed the structural capacity of the premises against current requirements—for example, that a minimum 100 metres be maintained between PAQ and non-PAQ horses at all times.

Minor issues identified by departmental auditors are listed in Table 7.

TABLE 7 Issues raised in departmental audits of PAQ facilities, 2016 and 2017

Issue	Improvement needed
Documentation	<ul style="list-style-type: none"> • No record of details of vehicles entering quarantine facility • No maintenance of records detailing vermin and rodent control • No work instructions for moving equipment into the facility
Stable management	<ul style="list-style-type: none"> • Waste collection and movement • No ‘Biosecurity’ labelling on relevant equipment
Staff management	<ul style="list-style-type: none"> • No staff awareness of work instructions

A private PAQ site manager asked that the department share information on the results of Mickleham audits to give confidence that it applied the same strict standards to Mickleham site audits as it does to private facility audits. Transparency of audit results would provide consistency across the three post-arrival quarantine facilities.

Managers of the Werribee and Canterbury Park approved-arrangement sites reported a good working relationship with the department. Werribee staff reported some issues with the documentation that accompanies imported horses:

- inaccuracy of imported feed import documentation (the department’s import management system, AIMS, does not always list the number of bags or weight of feed)
- incorrect or misspelt name of horse on import permit
- AIMS notification or import permit not received at least 24 hours before horse arrival
- copy of import permits sent by department to the importer but not to Werribee site staff.

Post-arrival biosecurity findings

In 2016 and 2017 the department recorded 11 post-arrival biosecurity and non-biosecurity incidents concerning horses subject to PAQ. These occurred either in transit and clearance or in the post-arrival facility at Mickleham, Victoria (Table 8).

TABLE 8 Post-arrival quarantine horse-related incidents at Mickleham, Victoria, 2016 and 2017

Date of incident	Finding	Country of origin	Date resolved
22.02.2016	Vet brought dog into PEQ without permission	na	24.02.2016
29.06.2016	Horse injury (escaped stall)	United States	Unknown
02.08.2016	Colic	United Kingdom	02.08.2016
14.11.2016	Raised temperature/bacterial infection	Germany	24.11.2016
16.12.2016	Waste bins not collected/emptied	na	20.12.2016
07.12.2016	Access to private vets cupboard	na	Unknown
27.02.2017	Mare aborts foal (EHV-1 positive)	Japan	27.02.2017
15.03.2017	Mare aborts foal (EHV-1 positive)	Japan	15.03.2017
14.08.2017	Head tilt/droopy ear	Germany	25.08.2017
31.10.2017	5 Horses EHV4 positive	United Kingdom	02.11.2017
14.11.2017	Horse injury (knee)	Germany	Unknown

na Not applicable. **EHV-1** Equine herpesvirus 1. **PEQ** Post-entry quarantine.

In 2016 and 2017 three border biosecurity incidents were recorded for horses from New Zealand (Table 9). None was assessed as having been caused by a pathogen of biosecurity concern.

TABLE 9 Border biosecurity findings for horses from New Zealand, 2016 and 2017

Date of incident	Finding	Horse count	Location	Date resolved
12.04.2016	Herpes virus PCR-positive	3	Western Australia	12.04.2016
01.02.2016	Bilateral mucopurulent discharge Mildly swollen submandibular lymph nodes	1	Victoria	10.02.2016
10.01.2017	EHV-4 PCR-positive	1	New South Wales	11.10.2017

EHV-4 Equine herpesvirus 4. **PCR** Polymerase chain reaction.

Communication with stakeholders

The department engages with the horse industry on equine biosecurity through the Horse Industry Consultative Committee (HICC). HICC members discuss technical, operation, policy and strategic issues related to horse imports, exports, and biosecurity and market access. Membership consists of:

- Australian Horse Industry Council
- Australian Veterinary Association
- Equestrian Australia
- Equine International Airfreight
- Equine Veterinarians Australia
- Harness Racing Australia Inc.
- International Racehorse Transport Pty Ltd
- New Zealand Bloodstock Pty Ltd
- Racing Australia
- Racing NSW/Canterbury Park International Horse Centre
- Racing Victoria/Werribee International Horse Centre
- Thoroughbred Breeders Australia.

The HICC is a valuable engagement mechanism, but wider communication to other significant stakeholders would be useful.

State and territory government consultation

In discussions with the Victorian Government Chief Veterinary Officer (CVO), I learned that Mickleham facility staff had little routine and ongoing communication with Victorian Government officials. The CVO reported that staff from these agencies had not met in over 18 months to discuss horse (and other animal) importation issues. He would like regular information and feedback from the department, including:

- animals arriving without proper documents or before documents are cleared in Australia
- consultation after detection of a biosecurity concern before an animal is released into the state
- an annual report on any disease detections in quarantine.

The Mickleham facility is the main holding facility for imported animals before they are released from biosecurity control. Given that it is located in Victoria, the Victorian Government CVO should attend stakeholder meetings held at the facility and summary reports from Mickleham should be sent periodically to all CVOs across Australia. HICC meeting outcomes should also be circulated to all CVOs and Animal Health Australia to ensure their awareness of horse biosecurity issues.

Post-arrival quarantine facility managers

Neither of the managers of the industry-run PAQ sites at Werribee or Canterbury Park had visited the Mickleham facility. Key staff from these industry-run PAQ sites and other relevant stakeholders, including state government veterinary authorities, should meet periodically (for example, every two years) at Mickleham to reinforce awareness of and commitment to good biosecurity practice and ensure transparency in the application of standards in different PAQs.

Recommendation 4

The department should organise two-yearly meetings with relevant stakeholders to reinforce awareness of and commitment to good biosecurity practices in horse post-arrival quarantine management. It should also provide timely information about equine and other biosecurity issues to state and territory chief veterinary officers and Animal Health Australia.

Department's response: Agreed.

The department will pursue opportunities to implement additional meetings to involve stakeholders not already involved in the Horse Industry Consultative Committee (HICC), to reinforce awareness of and commitment to continued biosecurity in post arrival quarantine management.

The department will continue to ensure timely information is shared to the state and territory Chief Veterinary Officers and will include Animal Health Australia in information sharing activities.

Conclusion

The biosecurity risks of importing horses into Australia were well managed. The department and industry are highly committed to limiting as far as possible the likelihood of another outbreak of equine influenza or other serious equine disease. Nevertheless, continued attention to the rigorous implementation of biosecurity procedures must be maintained over the long term. The department's biosecurity resources in Sydney in particular are stretched and should be supplemented rather than further eroded.

Appendix A

Agency response



Australian Government
Department of Agriculture
and Water Resources

SECRETARY

Ref: EC18-000408

Dr Helen Scott-Orr PSM
Inspector-General of Biosecurity
PO Box 657
MASCOT NSW 1460

Via Email: InspGenBiosecurity@agriculture.gov.au

Dear Inspector General ^{Helen}

Thank you for your letter of 7 September 2018 about your review report, *Horse importation biosecurity risk management*, and the opportunity to provide a response to your findings and recommendations.

The department agrees with the recommendations in the report. I am pleased to inform you that work towards addressing some of the recommendations has already commenced.

Specific comments in response to the recommendations are provided at Annex A. There are no matters referenced in your report that are considered prejudicial to the public interest and therefore should not be made publically available.

If you require any further clarification on our comments, please contact Ms Jackie South, Assistant Secretary, Animal and Biological Imports Branch on 02 6272 4990, or by email to Jackie.South@agriculture.gov.au.

Yours sincerely

Daryl Quinlivan

ANNEX A**Department of Agriculture and Water Resources responses to recommendations****Recommendation 1**

The department should continue to work with industry to ensure that Sydney airport's horse receival facility meets the First Point of Entry Standards when they come into effect in June 2019.

Response:

Agreed.

The department has already conducted an assessment of the Sydney airport horse imports clearance facility against the new First Point of Entry Standards. The department will continue to work collaboratively to ensure the facility meets the Standards when they come into effect in June 2019.

Recommendation 2

The department should develop state-specific contingency plans for managing a significant equine biosecurity issue identified at an airport inspection when horses are imported from New Zealand and New Caledonia or are in transit.

Response:

Agreed.

The department had already identified this as an issue and is developing a discussion paper and proposed contingency plan to manage any equine biosecurity incidents found during airport inspection. The department will continue to consult with industry and ensure state and territory governments are also appropriately consulted.

Recommendation 3

The department should ensure that adequate properly trained staff are available at all times to manage the biosecurity risks of arriving horses, particularly at Sydney and Melbourne airports.

Response:

Agreed.

The department has undertaken targeted recruitment and training to ensure adequate staff are available at all times to manage biosecurity risks of arriving horses at airports, particularly Sydney and Melbourne.

Recommendation 4

The department should organise two-yearly meetings with relevant stakeholders to reinforce awareness of and commitment to good biosecurity practices in horse post-arrival quarantine management. It should also provide timely information about equine

and other biosecurity issues to state and territory chief veterinary officers and Animal Health Australia.

Response:

Agreed.

The department will pursue opportunities to implement additional meetings to involve stakeholders not already involved in the Horse Industry Consultative Committee (HICC), to reinforce awareness of and commitment to continued biosecurity in post arrival quarantine management.

The department will continue to ensure timely information is shared to the state and territory Chief Veterinary Officers and will include Animal Health Australia in information sharing activities.

References

- Biosecurity Australia 2010, [Import risk analysis report for horses from approved countries: final report](#), Canberra, March.
- Callinan, I 2008, [Equine influenza: the August 2007 outbreak in Australia, report of the Equine Influenza Inquiry](#), Commonwealth of Australia, Sydney, April.
- DAFF 2013, [Import risk analysis report for horses from approved countries: final policy review](#), Department of Agriculture Fisheries and Forestry, Canberra.
- European Commission 2010, [Final report of a mission carried out in China in order to evaluate the animal health controls in place on registered equidae destined for export to the EU from the municipality of Guangzhou in Guangdong Province](#).
- Gizaw, Y, Megersa, M & Fayera, T 2017, [Dourine: a neglected disease of equids](#), *Tropical Animal Health and Production*, vol. 49, no. 5, pp. 887–97, doi: 10.1007/s11250-017-1280-1.
- Khan, I, Wieler, LH, Melzer, F, Elschner, MC, Muhammad, G, Ali, S, Sprague, LD, Neubauer, H & Saqib, M 2013, [Glanders in animals: a review on epidemiology, clinical presentation, diagnosis and countermeasures](#), *Transboundary and Emerging Diseases*, vol. 60, no. 3, pp. 204–21, doi: 10.1111/j.1865-1682.2012.01342.x.
- Neubauer, H, Sprague, LD, Zacharia, R, Tomaso, H, Al Dahouk, S, Wernery, R, Wernery, U & Scholz HC 2005, [Serodiagnosis of 'Burholderia mallei' infections in horses: state-of-the-art and perspectives](#), *Journal of Veterinary Medicine, Series B*, vol. 52, no. 5, pp. 201–05, doi: 10.1111/j.1439-0450.2005.00855.x.
- Smyth, GB, Dagley, K & Tainsh, J 2011, [Insights into the economic consequences of the 2007 equine influenza outbreak in Australia](#), *Australian Veterinarian Journal*, vol. 89, pp. 151–58, doi: 10.1111/j.1751-0813.2011.00777.x.

