A multipurpose biosecurity dog for all seasons

By LYN O'CONNELL, Deputy Secretary – Department of Agriculture

Our biosecurity detector dogs have come under a lot of attention recently as we look to respond to African swine fever at Australia's international airports.

Since 1992, biosecurity detector dogs have actively contributed to Australia's frontline defence against damaging biosecurity risks that could devastate our health, industries, economy and environment.

What was once just a pair of dogs in Sydney and Brisbane has grown into a world leading program for innovative dog training and deployment.

Since 2012 'multipurpose' biosecurity dogs have been trained to be deployed across multiple biosecurity risk pathways including across the passenger, mail and cargo pathways. Prior to 2012, detector dogs were confined to working within the one biosecurity risk pathway requiring more dogs to cover the different activities.

The multipurpose approach allows us to deploy the dogs in a more efficient way, though it should be noted that detector dogs are just one in a range of technologies that operate at Australia's border. Multipurpose deployment has enabled us to reduce dog numbers whilst maintaining screening volumes. In fact, total screening volume has consistently increased since 2012 despite the decline of dog numbers.

In-house training has contributed significantly to this outcome allowing us to develop a nationally consistent detector dog and handler capability optimised for deployment across all operational scenarios. Our in-house trainers ensure the biosecurity detector dog fleet is continually refined, modernised and exploring new opportunities in biosecurity risk detection.

After completing our rigorous eight week in-house training program, dogs are able to detect over 200 biosecurity risk items including fruit, meat, plants and seeds. The biosecurity dog fleet detects more than 65,000 biosecurity risk items each year and each dog can intercept more than 9,000 risk items in their working life.

We recently worked with researchers at the University of New England to train biosecurity detector dogs to detect Brown Marmorated Stink Bug (BMSB) and trained the handlers to deploy the dogs in a cargo environment.

Detector dogs are currently deployed to screen a variety of vehicles, machinery and break bulk cargo for BMSB at our major ports. This allows a far greater proportion of these goods to be effectively screened than would be possible through manual intervention. Further opportunities to take advantage of the efficiency, mobility and detection capability offered by detector dogs are currently being explored.

The success of the BMSB detector dog research means we can deploy our existing detector dog capability to better protect Australia from a broader range of biosecurity threats. For example, detector dogs take on average around 15 seconds to screen a new car for BMSB, which is considerably faster than the five minutes taken by manual screening methods. While we are still trialling the deployment, this represents a significant potential to increase the speed and assurance of breakbulk cargo verification screening during BMSB season.

The next step in this research is to identify similarities between groups of risk material to make our detector dog training more effective. The reason our dogs are able to identify in excess of 200 different individual commodities is that they naturally generalise across scents—they learn to offer a response to items similar to those they encountered in the past. By better understanding this process and the commonalities across our target groups, we can better equip our dogs to find more risk material in a shorter timeframe. This will contribute to a more flexible and responsive detection capability and support rapid response training of our detector dog fleet as seasonal and emerging risks present themselves.

The rapid spread of African swine fever overseas, and the most recent reports of outbreaks in Timor-Leste, has meant we have redeployed detector dog capabilities to help protect Australia. Biosecurity detector dogs are now deployed in all major international airports including Darwin and Cairns.

We continue to modernise and evolve our detector dog program as part of an integrated biosecurity system. We are investing in modernising all aspects of our biosecurity system, including trialling 3D x-ray to develop automated detection algorithms for detecting biosecurity risk material and targeted intervention across passenger mail and cargo pathways. These advancements are deployed alongside our detector dog fleet and other detection technologies to maintain our enviable biosecurity status and protect Australian industry.