

Boosting capacity for veterinary testing

The Veterinary Laboratory for the Pennsylvania Department of Agriculture, USA, uses a Freedom EVO® 150 workstation to test for Johne's disease, a contagious, chronic and potentially fatal paratuberculosis infection of the small intestine in ruminants.



Deepanker Tewari, Director of the Pennsylvania Veterinary Laboratory in Harrisburg

“The Tecan platform and scheduling software give us all the flexibility we need...”

The Veterinary Laboratory for the Pennsylvania Department of Agriculture is part of the tripartite Pennsylvania Animal Diagnostic Laboratory System (PADLS), which provides a comprehensive range of immunohistochemical, serological, molecular diagnostic, bacteriological and virological tests, as well as pathological and aquatic services for the State of Pennsylvania. PADLS routinely offers disease testing for animals of agricultural importance and, in the case of animal disease emergencies such as outbreaks of avian influenza, foot and mouth disease or classical swine fever, is well equipped to offer testing as part of the National Animal Health Laboratory Network. Just within the cattle species, PADLS provides services to over 10,000 herds – comprising more than half a million livestock – in Pennsylvania alone, as well as any others moving between states or for export to the Americas, Europe and Asia. This high throughput testing requires rapid response, as Deepanker Tewari, Director of

the Pennsylvania Veterinary Laboratory in Harrisburg, explained: “We currently process about 100,000 samples annually and have to be prepared for any outbreaks or animal health issues, such as avian influenza, equine herpes, etc., so flexibility is very important in our laboratory. We originally purchased a Freedom EVO 150 workstation with Gemini™ software from Tecan in 2004 to coincide with an expected increase in testing for BSE (bovine spongiform encephalopathy). As BSE testing numbers dropped, we decided to repurpose this instrument for automating an IDEXX assay for Johne's disease (paratuberculosis) in cattle, in order to cope with the 60,000 tests we were receiving annually. Although the workstation itself was perfect for the task, the platform's existing software meant that we would need to set up specific scripts to run different plate combinations, which was far from ideal. We contacted Tecan, and the Company worked closely with us to design a Freedom EVOware® Plus-based solution that



The Freedom EVO enabled the laboratory to perform 60,000 tests a year for Johne's disease



simplified our workflow and enabled us to schedule the number of plates we wanted for a specific assay run with just a single process. We greatly appreciated the support we received from Tecan.”

The scheduling feature, exclusive to Freedom EVOware Plus, removes the need to write different scripts for all the different batch sizes required, making it easy to adjust to varying throughputs. Deepanker continued: “The Freedom EVOware Plus scheduler is very easy to use; while it standardizes the platform for an assay run, the staff are free to do other important tasks, like quality control testing and the large amount of paperwork that we need to complete to meet animal health regulations. We chose to do initial sample dilutions and plate loadings by hand, but the rest of the ELISA is automated. The washing steps use Tecan’s fixed tips that work very well for serological assays; we had no problems with cross-contamination in our initial validation, and this is constantly confirmed by assays we perform for national proficiency testing schemes.”

The system coped easily with the laboratory’s initial Johne’s disease workload but recent changes in the Federal testing program have reduced this load to 20,000 samples annually, leaving plenty of capacity on the instrument for other ELISAs. Deepanker concluded: “Our needs are constantly changing, with new diseases and new testing protocols coming up all the time. The Tecan platform and scheduling software give us all the flexibility we need to deal easily with this, and we are looking at other assays that we can automate on the system now that we have additional capacity. We are really happy with the system, with the workflow we can achieve and especially with how easily we can adapt to our changing needs.”

To find out more on Tecan’s veterinary solutions, visit www.tecan.com/veterinary

To learn more about the Pennsylvania Animal Diagnostic Laboratory System, go to www.padls.org



Daniel Moser, Marketing Manager, TIG, Tecan Schweiz AG

Leading the debate

Laboratory automation is a continually shifting landscape, requiring constant innovation to match the latest cutting-edge techniques to the routine workflows of life science laboratories. Implementation of these novel technologies can often be complex, involving numerous sample handling processes and integration of a number of separate instruments or devices into a single, cohesive workflow. This issue is further complicated by the increasing use of high throughput technologies, requiring laboratories to reliably and reproducibly process hundreds, or sometimes thousands, of samples a day.

Laboratory automation is an obvious solution to help laboratories address both the increasing complexity and higher throughput requirements of these innovative technologies, but there is not always a standard automation system available to meet their individual needs. Although many companies and academic centers have the expertise to develop a bespoke automation solution in house, there are a wide range of associated issues – such as quality assurance and regulatory concerns – which can make this approach unfeasible.

The Tecan Integration Group (TIG) was created in 1996 to address this challenge, bringing together a multidisciplinary team of life scientists, engineers and software programmers to provide smooth implementation of bespoke solutions and new technologies. Drawing on over 30 years of experience in liquid handling, project management, quality assurance and regulatory compliance, TIG aims to support customers throughout the development of their system – from initial planning through to final acceptance of the workstation following installation – offering a guarantee of quality and complete peace of mind.

To share your experiences of working with Tecan to produce bespoke solutions, send your comments to talk@tecan.com