| DATA SCIENCE | LINLEY JESSON |
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| Outcome More sustainable and profitable systems. Impact Indicators Maintained and/or increased crop volumes, value and profitability  New Zealand’s productive environments sustained or enhanced, generating products with verifiable reduced footprints to maintain and/or increase market access. Science Targets Whole systems modeling and prediction platform  Tools developed for eco-verification, footprinting and traceability (water, carbon, greenhouse gases, soil, biodiversity, pesticides, social equity)  Improved production technologies and cultivars based on scaled up knowledge from molecular, physiological, soil, water and environmental science, integrated with system science. Impact Highlight The Science Data Facilitation Project is a collaborative project between Data Science and IKS aimed at promoting the best management of research data and ensuring data is *Findable, Accessable, Interoperable* and *Reusable.* Data Science member Carmel Woods is working with the Science Data Facilitator Melanie Burns to identify and train one staff member from each science team across the organisation in the role of Data Steward. These Data Stewards work with their teams to identify areas for improvement in data management practices, support the team to make this happen, and keep the momentum going. Currently there are 49 teams (out of 77, 64%) with a Data Steward and 35 (45%) have been trained.  The Science Data Facilitation project is also collating the types of data that scientists are working with across the organisation, identifying individuals that want to be involved in discussions around good practice, and determining the best method to have these discussions and agree on good practice. The discussions have commenced with two data types (Genome Assembly and RNA Sequence) and documentation is almost complete. We will then seek feedback on the process and look at ways to improve the process when we select the next data type. This project is well on task to improve the culture of science data management within Plant and Food Research. OutputsPeer-Reviewed Publications Cardello, Armand V., Sok L. Chheang, Duncan I. Hedderley, Lindy F. Guo, Denise C. Hunter, and Sara R. Jaeger. "Toward a New Scale to Measure Consumers’“Need for Uniqueness” in Foods and Beverages: The 31-item FBNFU Scale." *Food Quality and Preference* (2018).  Clayton WA, Albert NW, Thrimawithana AH, McGhie TK, Deroles SC, Schwinn KE, Warren BA, McLachlan ARG, Bowman JL, Jordan BR, Davies KM. 2018. UVR8-mediated induction of flavonoid biosynthesis for UVB tolerance is conserved between the liverwort Marchantia polymorpha and flowering plants. *The Plant Journal* 96: 503-517.  Chagné, D., Ryan, J., Saeed, M., Van Stijn, T., Brauning, R., Clarke, S., Jacobs, J., Wilcox, P., Boursault, E., Jaksons, P. and Jones, D., 2018. A high density linkage map and quantitative trait loci for tree growth for New Zealand mānuka (Leptospermum scoparium L.). *New Zealand Journal of Crop and Horticultural Science*, pp.1-12.  Harker, F.R., Feng, J., Johnston, J.W., Gamble, J., Alavi, M., Hall, M. and Chheang, S.L., 2018, Influence of postharvest water loss on apple quality: The use of a sensory panel to verify destructive and non-destructive instrumental measurements of texture. Postharvest Biology and Technology, 148(32-37)  Lo PM, Walker JTS, Hedderley DI, Cole LM 2018. Reduction in leafroller (Lepidoptera: Tortricidae) abundance in orchards and vineyards 1976-2016, in Hawke's Bay, New Zealand. *Agricultural and Forest Entomology*, DOI:10.1111/afe.12283  Lo PM, Walker JTS, Wearing CH, Hedderley DI 2018. Factors responsible for changes in leafroller (Lepidoptera: Tortricidae) species composition on orchards and vineyards 1974–2015, in Hawke’s Bay, New Zealand. *Journal of Economic Entomology*, DOI:10.1093/jee/toy281  Teulon DAJ, Davidson MM, Nielsen M, Butler R, Bosch D, Riudavets J, Castañé C. 2018. Short Communication: Efficacy of a non-pheromone semiochemical for trapping of western flower thrips in the presence of competing plant volatiles in a nectarine orchard. *Spanish Journal of Agricultural Research* 16(3), 6p. DOI: 10.5424/sjar/2018163-13060  Yu X, Kong HY, Meiyalaghan V, Casonato S, Chng S, Jones EE, Butler RC, Pickering R, Johnston PA. 2018. Genetic mapping of a barley leaf rust resistance gene *Rph26* introgressed from Hordeum bulbosum. *Theoretical and Applied Genetics*, 14p, DOI: 10.1007/s00122-018-3173-8. Client Reports Campbell R, Patrick E, Turner L, Butler R, Walter M. 2018. AFII *Neonectria ditissima* infection risk. Plant & Food Research Confidential Report. SPTS No. 16984.  Elmer PAG, Hoyte SM, Reglinski T, Wurms K, Parry FJ, Phipps J, Taylor J, AhChee A, Spiers M, Rees J, Lyall K, Wallace J, Alavi M. Kiwifruit bio-bactericides, End of Year Project Report 2017/2018, SPTS No. 16995.  Lee PY, Roigard C, Tuckey N, Timms B, Guo L, Jaeger SR. August 2018. Chinese consumers’ perceptions and attitudes towards mussel consumption: Online survey 2018. A Plant and Food Research report prepared for: Cawthron Institute. Milestone No. 78820. Contract No. 30983. Job code: P/533002/01. SPTS No. 16901.  McGlone VA, Tomer NT, Wohlers MW. November 2018. NIR remote sensing of kiwifruit using ambient sunlight. A Plant Food Research report prepared for: Discovery Science, PFR Internal Investment. Milestone No. 1-79412. Contract No. N/A. Job code: P/271036/02. SPTS No. 17064.  Moggré G-J, Alayon-Marichal M, Sowersby T, Hedderley D, Grosvenor A, Gathercole J, Moreno T. 2018. BPA 1809-02: Protein from oil seed cake supplementary work. Plant & Food Research Confidential Report for The Bioresource Processing Alliance. SPTS No. 17068.  Neal S, Grose C, Martin D, Albright A, Stuart L, Topal T, McLachlan A (2018) Influence of nitrogen and potassium nutrition on mineral content of Sauvignon blanc. A Plant & Food Research Client Report prepared for New Zealand Winegrowers. SPTS No. 17070.  Norris M, Hunt A, Green S, Hedderley D, Rainham D, Jackson N. 2018. Waimea plains fluxmeter project: October 2018 update. Plant & Food Research Confidential Report for Ravensdown Fertiliser Co-op Ltd. SPTS No. 17109.  Raw V, Grose C, Albright A, McLachlan A, Martin D. 2018. M3151: Clones and rootstocks annual report. 30 September 2018. A Plant & Food Research Client Report prepared for New Zealand Winegrowers. SPTS No. 17009. Invitations to Participate on Editorial Boards M Wohlers received an invitation to be part of the editorial board for the 9th International Postharvest Symposium to be held in Rotorua November 2020. The reviewed and edited papers will be published in Acta Horticulturae. Presentations Given at International or National Conferences or Meetings Chng, S., Craigie, R., Warren, R., Drummond, J. & Butler, R. 2018. Current challenges and future prospects in managing *Ramularia* leaf spot in New Zealand. AHDB *Ramularia* Workshop. 3-4 October 2018, Novotel London Stansted Airport, UK Professional Development Harris Lin has started as a Data Scientist in the Data Applications team.  Mark Wohlers presented an overview of the current state of his PhD research into “Deep Multiple Instance Learning for Predicting Fruit Storage Potential” to the a University of Waikato committee on the 23rd of October. This was a required part of his successful application to reach confirmed enrolment. | |