

**BEFORE THE HEARING COMMISSIONERS APPOINTED BY ENVIRONMENT  
CANTERBURY**

**IN THE MATTER** of the Resource Management Act 1991  
(**RMA** or **the Act**)

**AND**

**IN THE MATTER** of Proposed Plan Change 7 to the  
Canterbury Land and Water Regional  
Plan

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**STATEMENT OF EVIDENCE OF SUSAN CHRISTINA GOODFELLOW ON  
BEHALF OF HORTICULTURE NEW ZEALAND  
17 JULY 2020**

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**Contents**

**EXECUTIVE SUMMARY .....3**

**INTRODUCTION .....4**

Qualifications and experience .....4

Expert Witness Code of Conduct .....5

Involvement in the plan change .....5

Purpose and scope of evidence.....5

**FUTURE FARM SYSTEMS .....13**

**CONCLUSIONS AND RECOMMENDATIONS .....14**

## EXECUTIVE SUMMARY

1. There is potential to increase commercial vegetable production for export. Canterbury has a 38% share of New Zealand's processed vegetable production. With reliable water, good soils, climatic conditions and proximity to Lyttelton Port and Christchurch International Airport, there is potential to increase fresh durable vegetable and processed vegetable exports. This aligns with Central Government's targets for increasing New Zealand's export value from horticultural products. Commercial vegetable production value per hectare at the farm gate is up to 4.25 times higher than dairy and employs 100 times more people per 1000 hectares than dairy.
2. At a time when New Zealand's economy needs rebuilding as we emerge from the impacts of Covid-19, Canterbury's current and future commercial vegetable growers need to have the confidence that Proposed Plan Change 7 to the Canterbury Land and Water Regional Plan (**PC7**) does not unduly restrict or cap the opportunity to increase sustainable vegetable production at scale, and thus the economic and employment opportunities associated with that.
3. New Zealand food producers are known internationally for producing quality, safe food. Food is trusted as consumers know New Zealand has robust food safety and quality standards, including standards and audit processes for commercial vegetable producers.
4. New Zealand Good Agricultural Practice (**GAP**) schemes provide assurance for the safe and sustainable production and supply of fruit and vegetables in New Zealand. Growers who meet GAP standards are able to demonstrate that required practices are in place for the production of New Zealand fresh produce to meet local and international regulatory and market requirements – so customers can buy with confidence. GAP standards in New Zealand horticulture are benchmarked to internationally recognised standards including GLOBALG.A.P. Integrated Farm Assurance (**IFA**).
5. These standards are far in excess of those required by the regulator. The point of difference being that these commercial market responsive standards do not limit **where** commercial vegetable production can occur.
6. Canterbury's current and future commercial vegetable growers need to have the confidence that they have the

flexibility to innovate, both at a farm system level and the vegetable type and variety level. Growers need to be satisfied that they can meet the regulatory requirements without the compliance requirements being so complicated and costly that they deter interest in developing the opportunity, and thus benefiting Canterbury and New Zealand through job opportunities and revenue from increased export value.

## **INTRODUCTION**

### **Qualifications and experience**

1. My full name is Susan Christina Goodfellow. I am an agri-food solutions enabler for New Zealand. I am a co-founder of Leftfield Innovation Ltd (formerly the Canterbury based Future Foods Initiative launched in October 2016), an agri-food social enterprise focused on providing agri-food solutions based on consumer trends and agri-based science. I am the strategy and environmental lead for our business which enables sustainable land use opportunities through a market led approach to inform how we can capture and create value from sustainably grown raw materials. I co-develop strategies to link food producers to consumers using data driven provenance solutions – farmer's providing data evidence of how the food is grown and the environmental impacts of production.
2. I hold a Bachelor of Landscape Architecture (Honours, 1998) and Master of Landscape Architecture, Resource Management (1999), both from Lincoln University. I have over 20 years' experience as an environmental consultant in both Asia and New Zealand. The past 10 years have been dedicated to the New Zealand primary sector, particularly in relation to enabling reliable water for sustainable food and fibre production via irrigation schemes.
3. Prior to co-founding Leftfield Innovation Ltd, I was the General Manager Environment for Central Plains Water Ltd (**CPWL**) for 6.5 years. At CPWL my role as an executive team member encompassed securing scheme funding, leading and mentoring the Environmental Team, development and management of the environmental work programmes across the farmer uptake, construction and operational stages of the scheme; the management of regulatory requirements, risk management; health and safety; shareholder/stakeholder engagement and communication work.

4. It was as a result of CPWL farmers needing to identify sustainable irrigated land use opportunities that the 'Future Foods Initiative' and thus Leftfield Innovation Ltd was founded.

#### **Expert Witness Code of Conduct**

5. I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's Practice Note dated 1 December 2014. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

#### **Involvement in the plan change**

6. Potential sustainable land use opportunities for Canterbury include production of some vegetable varieties. Over the past 3 years Leftfield Innovation Ltd have undertaken market-based research to identify (and evaluated existing) vegetable production opportunities in Canterbury for export. This work indicates that there are export opportunities for fresh durable vegetables. We aim to undertake further market research to determine specific markets and requirements as a next step to this work.
7. Leftfield Innovation Ltd established a Canterbury based Grower Group encompassing a total of ~5000ha which is currently dedicated to growing grains and a range of fresh vegetables and vegetables for seed export. Through this work I am connected to members at Horticulture New Zealand (**HortNZ**) and other individual growers who are concerned about the potential cap on growth that could occur via the regulatory process, limiting opportunities for the industry to meet the domestic market, and to optimise the export growth opportunities identified by Leftfield Innovation Ltd and Government agencies (New Zealand Trade & Enterprise, Ministry of Business Innovation and Employment).

#### **Purpose and scope of evidence**

8. The purpose of my evidence is to outline the importance of a regulatory framework for Canterbury that allows for market led **sustainable** land use opportunities to be pursued by farmers, and the respective research organisations to innovate in relation to plant varieties and production systems

to achieve the required environmental outcomes. I highlight the importance of the existing standards and audit processes vegetable producers must currently meet and that these are more in-depth and of a higher bar than the regulatory requirements imposed via the Resource Management Act 1991 (**RMA**). These industry standards do not limit where vegetables can be grown commercially but focus instead on **how** they are grown and processed.

9. I will highlight that a focus on how vegetables are grown is driving consumer purchasing behaviour, and thus incentivises growers to step up to 'meet the market' or they will miss out on market opportunities. Constraints on where vegetables can be grown in Canterbury potentially limits the future ability for current growers and potential new growers to meet the market both domestically and new export opportunities.
10. I will also set out the expectation of the future farm system which includes a range of diverse land uses that work together (both plants and animals) to effectively manage and reduce environmental impacts. This approach allows for innovation and diversification and allows Canterbury and New Zealand to benefit from the environmental and economic resilience these systems can provide. However, for the future farm system to be successful, the regulatory framework must be enabling by not restricting types of land use on a location basis, but rather on an output basis i.e. nitrogen lost below the root zone and placing the responsibility on the grower to develop effective strategies to comply.

## **HORTICULTURE – GROWTH POTENTIAL FOR NEW ZEALAND<sup>1</sup>**

11. New Zealand's Food and Beverage (**F&B**) exports equate to almost 50% (\$33.6b) of New Zealand's total goods and service exports, second largest pre Covid-19 was tourism/travel at 16.6%. Covid-19 has highlighted the importance of our F&B exports to the economy.
12. Central Government is committing funds to address the current and future projected labour shortfall within the industry. Central Government's 2020 Budget announcement included \$19.3 million funding over four years to support thousands of recently unemployed people to retrain for an

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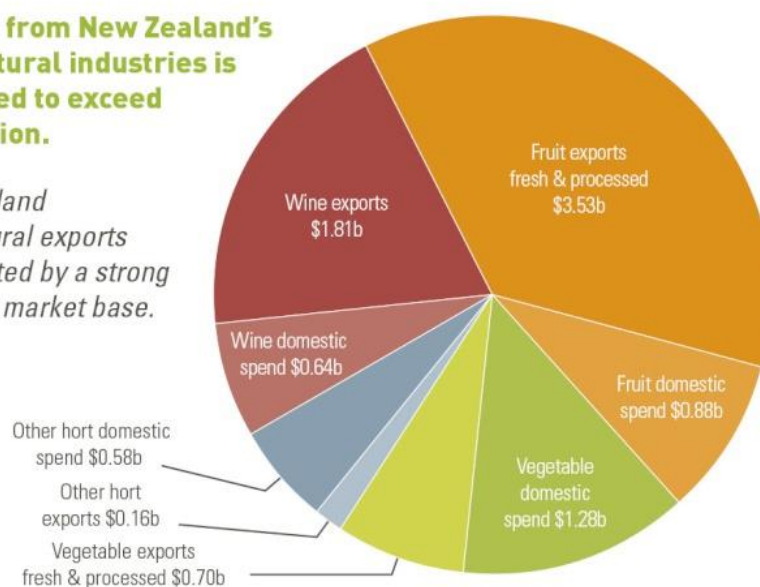
<sup>1</sup> Stats sourced from: Situation and Outlook for Primary Industries December 2019; Coriolis - Report (NZTE, MBIE) December 2019 Report

immediate 10,000 roles. Hon Damien O'Connor, Minister of Agriculture estimated 50,000 more people post Covid-19 would be required in the primary sector<sup>2</sup>. Since the Budget announcement, the Government has released its vision for the primary sector 'Fit for a Better world – Accelerating our economic potential' which includes \$45.3million towards supporting more high-growth performers in the horticulture sector.<sup>3</sup>

13. Horticulture exports in 2020 equated to \$6.2b of F&B exports; 12% growth in vegetable production has occurred between 2015 and 2020. The horticultural sector has many high-growth performers, including kiwifruit, apples and wine (**Figure 1**). There are others that could develop to sustainably provide similar levels of return including some fresh vegetables.

**Produce from New Zealand's horticultural industries is calculated to exceed \$9.5 billion.**

*New Zealand horticultural exports are assisted by a strong domestic market base.*



*Source: Statistics New Zealand merchandise exports, with domestic market figures derived from the triennial Household Economic Survey (HES) 2019 and Statistics New Zealand estimate of mean number of private dwellings year to 30 June 2019.*

Figure 1 NZ Horticultural domestic and export by market segment - 2019

14. In New Zealand, 2.2% of the farmland is currently used to grow plant-based foods, of which 0.32% for vegetable production.
15. Of note is that the value per hectare at the farm gate is up to 4.25 times higher than dairy and employs 100 times more people per 1000 hectares than dairy. The value per hectare

<sup>2</sup> <https://www.beehive.govt.nz/release/budget-2020-jobs-and-opportunities-primary-sector>.

<sup>3</sup> Fit for a Better World – Accelerating our economic potential, Page 10: Transformational Opportunities, Horticulture development.

at the farm gate for vegetables ranges between \$10,000-\$34,000/ha compared to dairy at \$7,900/ha.

16. The horticulture industry, which includes permanent and annual crops, employs between 126 to 366 people per 1000ha (**pp/1000ha**). Vegetables employ 273 pp/1000ha, dairy 28 pp/1000ha, and sheep/beef/arable 5pp/1000ha.
17. Canterbury has a 38% share of the process crops produced in New Zealand as shown in **Figure 2**, below.

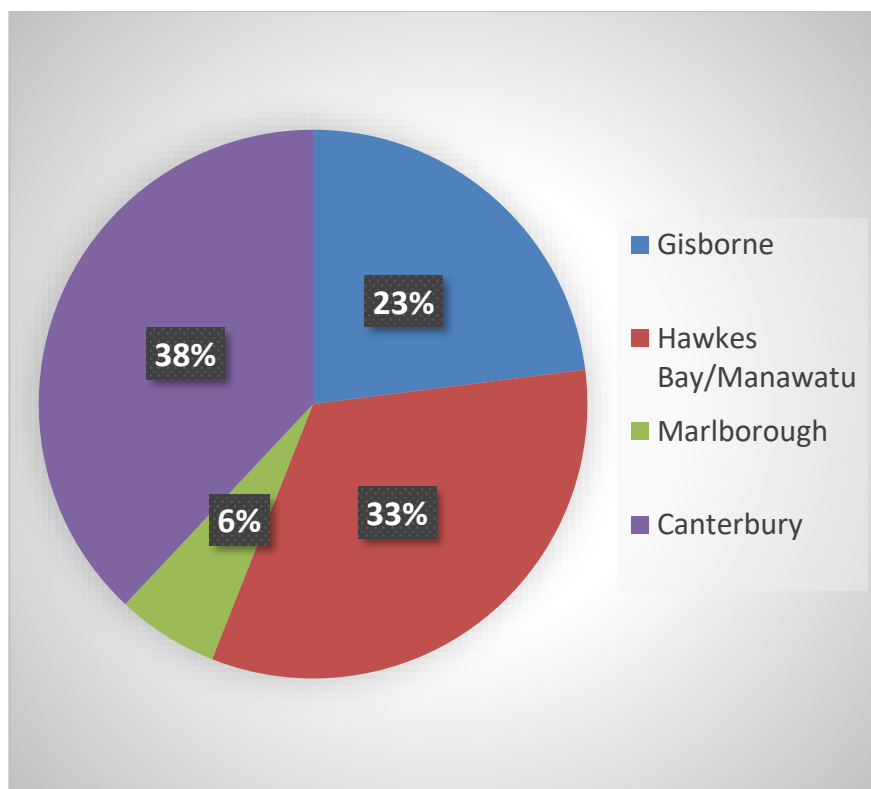


Figure 2 Share of process crop by region for the 10 years to 2018

18. Canterbury is in a unique position as it has the soils, climate, and access to reliable water to provide certainty that growers can produce the quality and quantity of vegetables to meet domestic and export market demand. Further, Canterbury is located within an export hub with Port of Lyttelton, the Inland Port at IZone in Rolleston, and Christchurch International Airport.
19. Currently commercial vegetable production for the domestic market matches demand. The greatest potential for commercial vegetable production in Canterbury is for export, increasing the economic benefits for Canterbury and New Zealand, and employment opportunities for Cantabrians.



20. It should be noted that with the expansion of urban development to the land historically under commercial vegetable production, there are real risks in the mid and longer term for local commercial vegetable producers. Growers are finding it increasingly difficult to find suitable land close to the City, and therefore to the markets and trade.
21. It is expected that the demand for durable New Zealand fresh products that require significant water and land area is likely to increase, particularly from the affluent Asia Pacific consumers in countries that have limited water and land resources. Countries such as Singapore, Taiwan, Japan, Australia, and some Middle East countries have been part of preliminary investigation for direct marketing opportunities from New Zealand.
22. We are seeing this demand is being accelerated as a result of the impacts of Covid-19, where global consumers are demanding quality nutrient dense safe food for improved health and immunity. Exporters have reported that some of their highest forward orders have occurred since the Covid-19 pandemic took hold globally at the end of the first quarter of 2020.

### **MARKET AND CONSUMER EXPECTATIONS**

23. New Zealand has a reputation for producing quality food. The Agribusiness and Economics Research Unit (**AERU**) Research - *Credence Attributes and New Zealand Country of Origin: A Review, Jan 2019*, established that consumers in countries around the world value New Zealand produce because we are a trusted nation and have established standards and processes to ensure the food we produce is safe and traceable. China, India, Indonesia, Japan, and the United Kingdom value food quality and food safety highly. Food safety means hygiene standards, rates of contamination, freshness and labelling of 'use by' date.
24. Research is showing us that global consumer values are changing. They are moving from the established values of taste and convenience to requiring food to be nutritious, and unprocessed (refer to **Figure 3** below). Vegetables fit the consumer food category for being natural and contribute to health and wellness.
25. Consumers are looking for foods that are produced in a way that demonstrates environmental stewardship, namely, production systems that - regenerate soil, reduce carbon and

improve biodiversity, are genetically engineered free, and addresses social responsibility and fair trade. These important contributions of value, known as credence attributes, come from qualities that cannot be seen or experienced at the point of purchase. Consumers will pay but these claims need to be verifiable and traceable back to the origin.

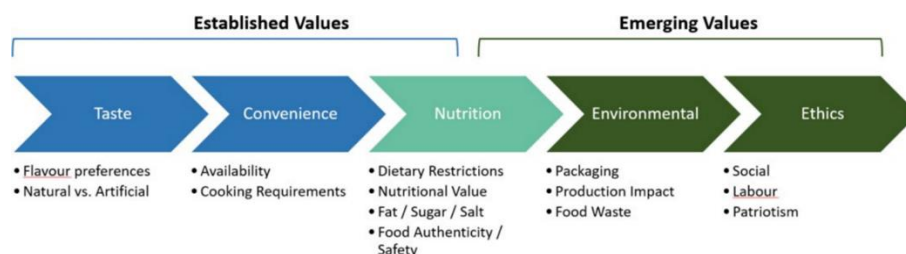


Figure 3 Showing changing consumer values

26. These consumers care and are willing to pay a premium. These are the consumers and markets that New Zealand and Canterbury producers are connecting with now and into the future.

### INFLUENCE OF CONSUMER DEMAND ON SUSTAINABLE FOOD PRODUCTION

27. Information technology is supporting those consumers that care to access information about a food and beverage product, as well as to purchase those products. The ability for consumers to seek out foods that provide evidence of how the food has been produced is a game changer.
28. This technology captures authenticated data starting at the farm and at each step in the supply chain to the consumer. This capability sets the bar of provenance and 'Country of Origin' from mere storytelling to truth telling. Farmers that are able to adapt and meet these expectations and provide evidence are able to participate in these premium markets.
29. Farmers are learning that future land use will be dictated by the consumer, and thus are pivoting to respond to consumer demands. The upside is that a more premium price is an incentive to continue to improve farm practices, innovate production strategies, and look at plant and seed varieties that have improved environmental footprints.

### THE LEFTFIELD INNOVATION APPROACH - DATA DRIVEN PROVENANCE

30. Leftfield Innovation Ltd developed an app that re-purposes data collected for compliance reasons and uses it for consumer value capture (Refer **Figure 4** below). Farmers are

asked to capture additional data beyond that required by Environment Canterbury such as agrichemical use and their carbon footprint.



Figure 4 From left to right - Above: QR code; Farm location. Below - Farm information and production data portal including national and global compliance certifications and standards; View of UN SDG'S linking to food production

31. The app enables the consumer to see where the product was grown, information about the farm, the grower standards and processes that are met, and the health attributes of the food.
32. This app is now being piloted with Canterbury based food companies to demonstrate to their international customers the New Zealand value proposition of safe, healthy food that is not damaging to the environment.

## LINKING STANDARDS AND AUDIT PROCESSES TO CONSUMER EXPECTATIONS OF QUALITY

33. New Zealand already has a number of standards and processes that are linked to export vegetables, including the NZGAP standards.
34. Commercial vegetable production growth is substantially managed through the GLOBALG.A.P Certification Programme, which is a worldwide regulatory system. GAP standards in New Zealand horticulture are benchmarked to internationally recognised standards including GLOBALG.A.P. Integrated Farm Assurance (**IFA**).<sup>4</sup>
35. Growers who meet GAP standards are able to demonstrate that required practices are in place for the production of New Zealand fresh produce to meet local and international regulatory and market requirements so customers can buy with confidence.
36. All certified growers are independently audited by Joint Accreditation System of Australia and New Zealand (**JAS-ANZ**) certification bodies, and they must continuously meet requirements of GAP standards to maintain certification.<sup>5</sup>
37. Market demand for a range of vegetables fluctuates and thus many farmers grow a range of vegetable crops, which could be between 18 and 28 different crop types, depending on market demand.<sup>6</sup>
38. Growing fit for purpose product for consumers is incentivised based on crop quality, which is linked to ensuring just the right amount of nitrogen is applied.<sup>7</sup>
39. Producing vegetables for domestic and international markets requires vegetables to be durable and have as long a 'shelf-life' as possible, which includes the ability to store vegetables. Excess nitrogen in the plant will rapidly result in decay in store or transit, thus excess use of nitrogen in horticultural practices is self-regulating.<sup>8</sup>
40. A crop arriving on the other side of the world in poor condition may result in dumping or returning the crop. Costs associated

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<sup>4</sup> As noted in Evidence of Damien Farrelly, dated 17 July 2020, paragraph 24.

<sup>5</sup> As noted in Evidence of Damien Farrelly, dated 17 July 2020, paragraph 2.

<sup>6</sup> Evidence of Rachel McClung, dated 17 July 2020, Appendix 1: Case Study 1 and 2.

<sup>7</sup> Evidence of Rachel McClung, dated 17 July 2020, Appendix 1: Case Study 2.

<sup>8</sup> Evidence of Rachel McClung, dated 17 July 2020, Appendix 1: Case Study 2.

with a rejected crop due to poor condition and not meeting the market requirements is around \$20,000.<sup>9</sup>

41. The horticultural industry and farmers are incentivised to provide quality product to market to retain ongoing supply relationships. Ongoing science, plant breeding, genetic and mechanical advancement is therefore a focus of ongoing work to ensure product meets the global market standards.<sup>10</sup> These strategies also ensure that vegetables are grown sustainably and meet and exceed regulatory requirements.
42. The New Zealand Government has released an acceleration roadmap *Fit for a better World Vision (Vision)* which notes the direction for horticultural development is to go towards funding facilities to enable the importation of new plant genetic material and to support new breeding programs, as key strategies to give effect to the transformational opportunities identified in the Vision to develop more horticultural high growth performers delivering higher returns for New Zealand.<sup>11</sup>

#### **FUTURE FARM SYSTEMS**

43. The Consumer will drive improved farm practices as higher degrees of transparency and traceability are enabled across The food supply chain, and as a result the consumer will drive sustainable land use diversification in New Zealand and Canterbury, creating future farm systems that comprise a mix of plants and animals to create resilience, both economically and environmentally.
44. Commercial vegetable production includes both owned and leased land due to the need to rotate crops to maintain soil health and avoid soil borne diseases and pests. The ability to have a varied cropping rotation, integrated with livestock grazing is unique and sets New Zealand vegetable growers apart from the rest of the world.<sup>12</sup>
45. Canterbury has the opportunity to optimise the potential of vegetable production given the range of suitable existing soil types coupled with reliable water available to many farmers via run-of-river irrigation schemes. Optimising this potential

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<sup>9</sup> Evidence of Rachel McClung, dated 17 July 2020, Appendix 1: Case Study 2.

<sup>10</sup> Evidence of Rachel McClung, dated 17 July 2020, Appendix 1: Case Study 1.

<sup>11</sup> New Zealand Government, *Fit for a Better World – Accelerating our economic potential*, July 2020, page 16.

<sup>12</sup> Evidence of Rachel McClung, dated 17 July 2020, Appendix 1: Case Study 1.

relies on innovation for the future based on research and development that focuses on what and how foods can be grown sustainably to meet market expectations.

46. Leftfield Innovation Ltd has been working with farmers and food companies in Canterbury and across New Zealand. We have worked with these farmers, running workshops in conjunction with the Our Land and Water Science Challenge and Next Generation Systems to identify and develop a values-based approach to land use diversification. The farmers we have engaged with see that the future is about a mixed farm system that combines plants and animals to optimise the nutrient cycle in the soil and reduce the environmental impacts of production. A shift in mindset to utilising the soils on their farm for the most suitable land use is evident. Leftfield Innovation is a company that is taking a market led approach and farmers are eager to see what opportunities are identified that they can participate in which will enable them to build a more resilient farm system, knowing that they have secure longer term contracts and that the crop options can be grown sustainably.

## **CONCLUSIONS AND RECOMMENDATIONS**

47. Future expansion of commercial vegetable production, including to meet export demand, includes the ability and flexibility for vegetables to be grown sustainably across the region. This requires growers, processors, and marketers to have certainty in relation to the regulatory framework that expansion is possible before they commit to developing these opportunities including the investment of time and funds in innovation of production methods and cultivars to minimise environmental impacts.
48. A key enabler of sustainable land use diversification in Canterbury will be a regulatory framework for commercial vegetable production within PC7 that allows flexibility and innovation in **what** can be farmed, **how** it can be farmed and **where** it can be farmed. This will enable farmers to innovate to ensure the environmental impacts are minimised and managed.

**SUSAN CHRISTINA GOODFELLOW**

17 July 2020