



Dairy Farmer Response to Storm and Floods 2021/22



Years of preparation helps to weather the storm!

Overview

- *Mid-north coast dairy farm with high stocking rate and established feeding infrastructure and production systems.*
- *Affected by 2021 and 2022 floods and persistent wet conditions.*
- *Impact reduced due to feed system flexibility and feed conversion efficiency, support from consultants and farming peers, and dedicated farm team.*
- *Long-term and ongoing investment in climate resilience using personal funds, grants and industry loans.*

“Hastings Park”

Leo, Sue, and Luke Cleary have been operating their dairy for over 30 years near Wauchope on the Mid-North Coast of New South Wales. With the Hastings River forming much of the property boundary, the farm is a 50:50 mix of arable ridges and alluvial flats with around 30% of soils

having poor drainage. The milking platform is 85 ha with an additional 142 ha heifer run and lease property. The milking herd is predominantly Holstein with around 30% Jersey crosses averaging around 315 head. The herd had grown to 330 head during the 2022 storms and floods. An annualized

stocking rate of 4.5 cows/ha keeps the team focused on optimising home grown forage, encouraged investment in feeding infrastructure, as well as improved feed purchasing skills. Up to 60% of total feed is purchased off farm and is either used in the dairy or fed through a partial mixed ration (PMR).

Farm development and flexible feeding systems increases preparedness

In response to repeated drought and wet weather events and a stocking rate that has more than doubled over the last 15 years, there has been a gradual evolution of feeding infrastructure and skills. Metal hay racks purchased to support feeding 150 cows cottonseed and hay during the Millennium Drought evolved into concrete troughs on a gravel feed pad. In 2018, this was replaced with a concrete feed pad with a flood wash system. Throughout this period there has been a switch from predominantly supplementing with hay and baled silage to use of a mixer wagon and a PMR system. This new system allows for improved feeding during times of limited pasture availability and increased flexibility with use of byproducts as well as home grown and purchased fodder. Investment in storage systems and cultivating relationships with multiple byproduct and grain suppliers has assisted in reducing exposure to a volatile and freight-cost-exposed hay market and ensures feed supply during difficult times.

In the years prior to the 2021 storms and floods, there were significant upgrades to the dairy milking and vat systems, as well as installation of Easy Dairy in shed automated feeding systems. Paddock access and orientation, as well as laneways were upgraded. They have the equipment and up-skilled staff trained in hoof trimming and treating lame cows.

The Cleary's have worked for over 20 years with their nutritionist and herd veterinarian to maintain a strong focus on reproduction, high per cow performance and high feed conversion efficiency.

Purchase and development of a second property for fodder production and rearing of heifers has added substantially to the enterprise. Only enough heifers for herd replacements are retained and over 90% of these enter the herd by 24 months of age. Continued autumn over sowing and improved soil-fertility in the heifer run optimises pasture productivity keeping heifer weights "on-target". It also provides opportunities for conservation and surplus fodder for the milking herd in better seasons.

Managing the impact of the 2021 and 2022 storms and floods

While well prepared, the 2021 and 2022 storms and floods had a significant impact on the Cleary's enterprise with two major floods occurring within 12 months. The 2021 floods peaked higher and were more sudden and physically damaging to infrastructure, but conditions eased reasonably quickly with favourable winter and spring conditions following. In contrast, the 2022 floods were significant but less dramatic. Similar to many enterprises in coastal NSW, it was the repeated nature of flooding and the persistent wet that caused more long-term damage to laneways, paddocks and morale surpassing the impacts of either flood event.

At the height of the floods, water ranged from a few cm to 10 meters deep near the riverbed. There were about 10 ha of both the milking platform and the heifer run being inundated. In contrast, the persistent wet impacted 100% of the farm. While the flood of 2021 resulted in surface water sitting on paddocks for 3 days, poorer drained paddocks were not trafficable for only 4 to 6 weeks. However, during the persistent wet of 2022, even better drained paddocks were untrafficable for 3 months with the worst paddocks impacted for up to 6 months. Leo reflected on the severe challenges posed to trafficability of cattle and machinery around the property and the challenges getting pastures re-established.



The Challenging paddock conditions during the 2022 “big-wet”.

As such, the cows could still be fed their PMR in a clean environment with the feed pad and large dairy yard also used to rest cows during the peaks of the events. As water subsided, the concrete feed pad was used for 4 to 6 hours/day before sending cows to sacrifice paddocks.

Persistent wet calls for changes in feeding tactics

In 2022 pasture availability was limited due to inundation, waterlogging, paddock damage and delays to normal winter planting. In response, the Cleary family developed a plan with their nutritionist to abandon grazing until paddocks dried out and to continue to commit to full feeding by increasing the PMR and dairy concentrate. While Sue relates a substantial increase in costs and reduced margins, milk production and income were satisfactory. The herd’s longer-term performance was secured with the event having minimal impact on herd health, reproduction and body condition.

Power was cut to the dairy for 5 days in the 2021 event. However prior installation of a generator and a 10-day supply of fuel allowed ongoing operation of the dairy and refrigeration of milk. Dairy feed could also be processed and delivered to the herd.

The flood wash for the feed pad was solar powered and was still operational during the storms and floods in both years.

This strategy also ensured paddock damage was minimised and while some sacrifice paddocks required major renovation, the majority of the farm was restored to pasture and silage production over the spring period. This allowed cows to return to some grazing in the diet, facilitating rapid replenishment of silage inventories.



From left to right: a sacrifice paddock used during the wet, pasture 2 months post 2021 storm and floods, and pasture 5 months post 2022 storms and floods.

The effluent system was impacted, and an irrigation pump was lost due to riverbank erosion. Calves suffered in the wet conditions and there was an increase in lameness in the milking herd. However, woodchips were used to top up well formed gravel laneways to reduce stone damage and had a skilled team with access to a hoof crush to treat lame cows quickly.

After the March 2021 floods, there was an immediate sharp drop in milk solid production however this bounced back quickly (Figure 1). While milk production dropped by around 7% in the immediate wake of the 2022 floods, the feeding and management strategies employed resulted in only a 3% reduction in total milk solids output for the entire year and while significant, **milk solid production was approximately 50% less impacted when compared to other surveyed herds.** Being able to continue milking with a well-maintained plant, trained staff, having a relatively young herd, and having clean feeding areas ensured **milk quality was also maintained with somatic cell counts running around 50,000 lower than the survey average and never exceeding 250,000 in the two years.**

The Cleary family described the extreme mental toll the events caused. During this time, Leo and Luke prioritised the cows and the farm over their own safety and health but acknowledged that they could have taken better care of themselves. Sue and Leo emphasise the critical role of positive staff and while the overall morale the team was challenged under the highly stressful situation, they were able to maintain all their workers with many offering to work longer hours to “help get through”. The support for the Cleary’s from farmers in their discussion group and their advisors in maintaining morale and mental health during the 2022 wet was described as just as important as their assistance with tactical decision making.

Moving forward- “We were well prepared but there is more we can do for whatever comes next.”

Despite the Cleary family making long-term investments and some key decisions that improved their recovery, they have still identified some enterprise constraints and limitations and have begun addressing these through use of their own funds and support from government flood recovery loans.

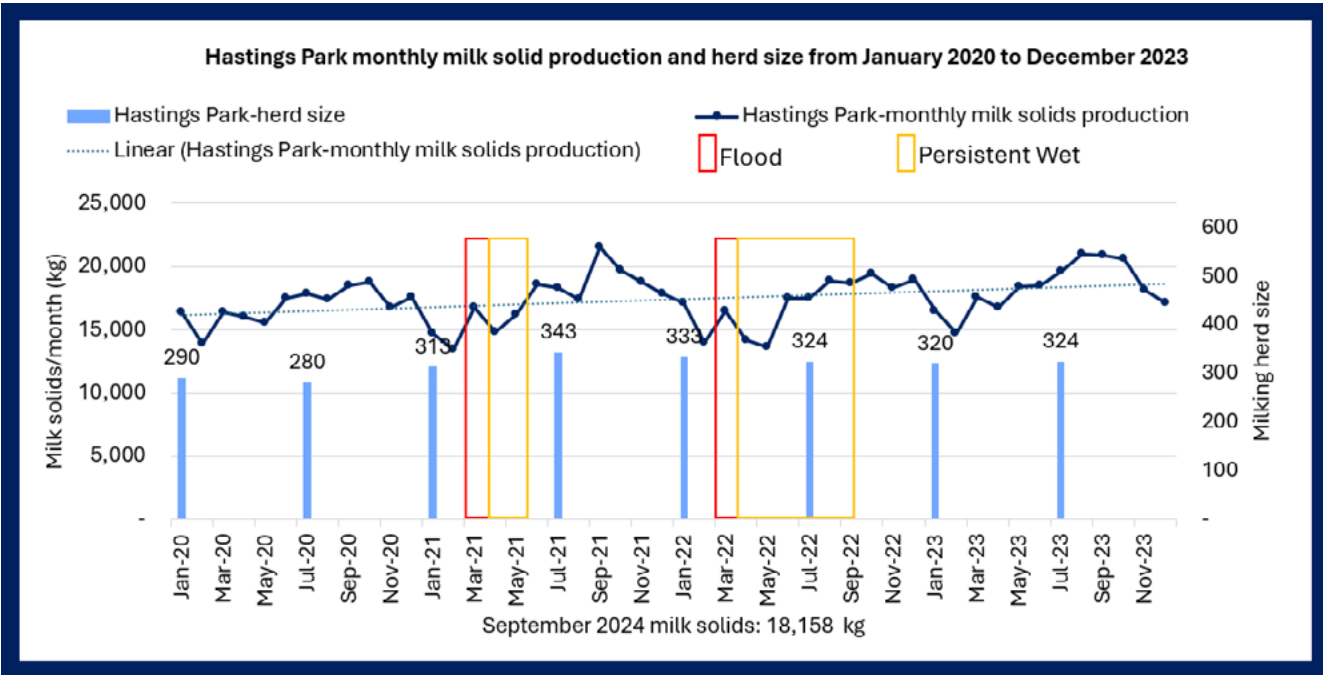


Figure 1. Graph of Hastings Park dairy monthly milk solid production and herd size.

Future disaster preparedness

1. With a stocking rate of 4.5 cows/ha, the feed pad and PMR system allowed full feeding of the herd in a safe environment able to be used frequently both during disaster times and normal seasons. Even with a concrete feed pad, there was above average feed spoilage and wastage due to weather exposure. **A roof was installed in 2023 to address this with the added benefit of sheltering the cows from heat stress over the summer.** Leo is also looking to further improve heat stress management with the installation of sprinklers and potentially fans as well. While cows can be fed safely in all conditions, sacrifice paddocks and increased time sheltering on concrete are still the only options for resting cows and preserving paddocks.

conditions for non-milking stock was also identified. Calf pens have been redesigned with calf hutches now on elevated, concrete mounds with wooden slats to allow calves to rest in a clean, dry, and shaded place. The hutches are orientated in the optimal position to reduce heat stress. Pens have been graveled to keep calves clean in wet times. Paths to calf pens have now been concreted to improve access for staff and the milk-taxi in all weather. Calf health has greatly improved with minimal problems recorded in the wet conditions of autumn 2024 and there are plans for gradual replacement of gravel with cleanable concrete areas as funds allow.



The feed pad during the 2022 wet period and with the new roof installed in 2023, and the newly constructed hay shed with all-weather access.

2. The importance of having good inventories of forage on hand in a highly stocked enterprise frequently exposed to climate challenge was highlighted during the floods. There were challenges experienced in both procuring, delivery, and storage of fodder on farm during protracted wet conditions. **A new hay shed with concreted all-weather access allowing storage of up to 120 tonnes of hay** has been built with support of government low interest disaster loans. This also allows some control of price and purchase “at harvest”.
3. While focus during the events was maintained on keeping milkers clean and well fed, **the need to improve**
4. **Keeping springers and the bull team healthy has also been prioritised** with elevated mounds and new shade sheds developed to provide shelter from wet weather, retreat from mud and to reduce heat stress in summer.
5. The Cleary family are highly focused on **maintaining a healthy, reproductively sound, feed efficient herd.** They continue to work with their nutritionist, agronomist and veterinarian to ensure that they are getting the most out of their herd and the feed that they grow and purchase. This is critical in any highly stocked dairy enterprise but even more so during periods of climate stress when a higher proportion of

feed is purchased and driving margins from this relies on high feed conversion efficiency and minimal feed wastage.

6. The Cleary family acknowledges production and reproductive benefits to optimising homegrown feed and fodder on all their properties. There is a heavy focus on heifer rearing and breeding and as Leo said, “stronger heifers perform better”. The Cleary’s first age at calving is 2 years old, and the heifers coming into the herd are competing and producing nearly as much as their cows. Heifer performance has been driven by agronomic investment on their second property with the added

benefit of generating surplus forage for use in the milking herd- **“we treat the pastures on our heifer run like our dairy pastures- this ensures heifers grow quickly and provided great silage for our milking herd- this in turn reduces our exposure to buying expensive fodder”**.

Nearly two years on, the Cleary family are still feeling the impact of the storms and floods, however, the business is performing well. Sue and Leo have shared their concerns about the industry and an increasingly challenging climate, but they certainly are not standing still!



The new elevated calf hutches and shade and shelter for springers.

Acknowledgments

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