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ENVIRONMENT
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JUDGES' REPORT FARMING SEVENOAKS FARM

INTERVIEWED

Cath and Paul Baker

DATE

24 November 2022

JUDGES

Peter Anderson, Penny Wardle and Wendy Sullivan

INTRODUCTION

Sevenoaks Farm is a 110 ha irrigated arable property at Brookby Road, Hawkesbury, part-owned by Paul and Cath Baker, producing sheep, beef, seed crops and grapes. The farm features two QEII covenants, a Significant Natural Area wetland and two streams.

The Bakers consider their property to be “under development”. Soil fertility and structure is steadily being improved. Completing fencing of waterways and environmental weed control (primarily crack willow) are the biggest issues being tackled.



They use their extensive knowledge of farm conditions and systems to maximise productivity over a wide range of land uses, while maintaining a low environmental footprint and enhancing biodiversity.

In addition to farming, the Bakers also undertake astro-tourism through developing a crater observatory in partnership with friend Lee Harper, and in previous years a maize maze has been planted for public enjoyment.

Their children are the sixth generation to live at Sevenoaks Farm. In Cath's words, "We are proud that we have continued to farm in a way that improves the diversity in the wider catchment while our range of operations enables us to enjoy what we are doing. Sevenoaks is our place of business but more importantly is our home and legacy to protect and enhance further."

GENERAL INFORMATION

The sheep herd features Longdown, a fecund and robust hybrid breed. Longdown are highly efficient, producing fast growing lambs. Combined with a lower stocking rate, Longdown have a low carbon footprint without compromising productivity.

The Bakers previously ran a 12-month dairy heifer grazing operation with dairy cow's winter grazing. They found that while profitable, dairy grazing was compacting the poorly drained soils. Damage took several years to repair which resulted in reduced crops and yields. The dairy grazers have been replaced with a Murray Grey cattle breeding and finishing operation. These compact cattle are run at low stocking rates.

They have opted to cultivate rather than using the conservation tillage system of spraying herbicide then direct-drilling; this minimises herbicide use. There is no deep ripping, and cultivating is done when soil is neither too wet nor too dry, to avoid it being blown away by wind or compacted.

The Bakers planted a 9 ha vineyard and the income from this enables Cath and Paul to enjoy a diverse farming operation. Despite no benefit to their bottom line, they comply with a Nil Residue spray programme (<0.01mkg/kg) required by some markets as it fits with their values. Soils are tested annually, and leaf/petioles are tested every three years. This knowledge means that fertilizer is only applied when necessary. The Bakers have also purchased their own canopy and weed sprayers to ensure sprays are applied in ideal conditions, based on weather station and soil data.



THE JUDGES WERE IMPRESSED BY

- Every aspect of the farm production system is carefully considered to ensure minimal impact on the environment:
 - Careful management is applied during cultivation to avoid loss and compaction of soil.
 - Paddock development has worked with contours and waterways rather than reshaping.
 - Crop types and livestock breeds are carefully selected to ensure minimal resource inputs and maximum yield production.
 - Vineyard rows have been set at 2.8 m instead of 2.7 m apart to reduce the amount of spraying, labour required and soil compaction, but without compromising yield.

- Vineyard mowing is minimised, undertaken only twice a year which reduces diesel use.
- Purchasing their own broadacre spray equipment has meant that sprays can be used when conditions and requirements are appropriate, rather than at the mercy of a contractor servicing multiple clients who may spray in sub-optimal conditions.
- Low levels of pests with subsequent yield reduction are tolerated rather than using sprays.
- Where possible, spraying is targeted rather than using broad-acre control, which also has less impact on bee populations.
- All baleage wrap and agrichemical containers are recycled.
- A relatively low stocking rate of a highly efficient sheep breed (good milkers with a high kg lamb weaned per ewe mated) continue to have high productivity without increasing carbon footprint.
- Good knowledge of property and farm systems, and willingness to adapt practices to suit conditions:
 - Adapting the irrigation system from hard hose guns to centre pivots due to the time, fuel and compaction caused by the sprinklers. This also minimises wind drift and evaporation.
 - Understanding and assessing soil types and their location and applying appropriate landuse.
 - Meticulous monitoring of soil pH and fertility and using soil and/or herbage tests to determine fertiliser application.
 - All permanent pastures are sown with a high legume component to improve pasture persistence and production, and animal performance.
- Adopting the philosophy of continuous improvement, using innovative problem solving and seeking advice.
- Accepting that a small amount of vineyard conversion is necessary for economics, but using that income to subsidise other practices that they find more rewarding.
- Community involvement with the development of the Omaka Maize Maze and Observatory, providing opportunities for children to experience the outdoors.
- A deep and intrinsic passion for the farm and livestock, its landscapes and the biodiversity within.
- Biodiversity protection:
 - Significant areas have been planted and protected with QEII covenants.
 - Waterways are fenced and native riparian areas have been planted in native species.
 - Cath is knowledgeable about birds and keeps a record of those seen.
 - As a self-confessed “weed nerd” she uses targeted sprays to control plant pests.



PROBLEMS AND HOW THEY HAVE BEEN TACKLED

Noxious weeds: Crack willow is a major problem along the stream edges along with barberry, blackberry and old man's beard within the covenant area. Because of the risk of willows falling into and blocking the waterway, the Bakers have obtained a resource consent to remove by digger and replant with natives.

Soil compaction: Previous land management practices such as dairy grazing and hard hose gun irrigation resulted in compacted soils. The dairy grazing has been replaced with low stocking rates of beef cows and the hard hose gun irrigation has been replaced with a centre pivot which applies water more evenly and with less force.

Fencing: Farm fencing needs major upgrades and significant capital outlay. The Bakers are using a staged approach, replacing a portion each year. They are reusing grape posts and use super-posts in the vineyard which are more easily recycled into stock fences.

Birds in the vineyard: Various techniques are used including automated lasers, positioned to focus the beam low in the vineyard which has been very effective.

SUMMARY

Landowners Cath and Paul Baker apply adaptive management practices to their farm, ensuring knowledge and data is used for the best outcomes for both production and the environment.

Their ethos is to work with the land rather than to try to convert it into something that is not suitable. The Bakers are constantly questioning their challenges and results, seeking advice and making considered changes to their system.

The judges applaud the way they put the environment at the forefront of their decision-making.

SUGGESTIONS

- Underplant the original native plantings to reduce weed growth. Include further specimen trees to result in a canopy layer, such as totara and kahikatea. A useful resource is [Plant list for Blenheim Ecozone](#).
- Plant streams and pond edges with overhanging vegetation. Lack of shading and lack of cooling appears to be one of the major impacts on water quality. Continued planting would provide shade as well as habitat for macroinvertebrates, fish, terrestrial birds and waterfowl. Shading will also reduce aquatic weeds. A planting plan template and guidance document can be found at landcare.org.nz/resource/planting/. Funding may be available, however grants tend to be over-subscribed. Start looking at funding options sooner rather than later as there is a one to two year wait for native plant stock.
- Willow control is essential to improve flow, water quality and habitat for the streams and open water, and these need to be rehabilitated with native plantings quickly to avoid weed growth.
- Investigate protecting the cabbage tree remnants through the Marlborough District Council's Significant Natural Areas (SNA) programme which includes financial help with work such as fencing, and other support such as advice and information.
- Check out www.irrigationnz.co.nz/ to improve knowledge and efficiencies with irrigation, such as the "bucket test". There are a number of free factsheets, or if you join as a member, opportunities for further training.

- Investigate the potential for inter-row planting of the vines with a suitable species with a potential for harvesting, eg, subclover, annual clover.
- Sound out neighbours to gauge interest in revitalising the Mill Stream catchment care group. Groups such as these provide peer support and more scope for funding through grants if formed as a legal entity.
- High producing animals have a lower carbon footprint per kg meat produced compared to a less productive one. While stock performance would appear to be very high this has not been measured. With the low number of ewes run identifying those triplet-bearing ewes that rear a good set of triplets would be useful in the breeding programme.
- Be prepared for new regulation requirements by assessing greenhouse gas emissions through Beef & Lamb NZ <https://beeflambnz.com/ghg-calculator-info>