IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments ("Proposed Plan or PC1")
AND	
IN THE MATTER	of submissions and further submissions by Oji Fibre Solutions (NZ) Limited

STATEMENT OF EVIDENCE OF HARRY MOWBRAY ON BEHALF OF OJI FIBRE SOLUTIONS (NZ) LIMITED

22 FEBRUARY 2018

Counsel: G K Chappell
DDI 09 300 1259 | **M** 0273034757 |
E gillian@chappell.nz |
PO Box 3320 Auckland 1140 DX CP20546 |

CONTENTS

1. SUMMARY

1.1 I am the majority owner of an organic certified dairy farm located South of Tokoroa on SH1 within the Waikato River Catchment. At the time of purchase the farm had been poorly managed using conventional farming techniques. We gradually converted it to an organic farming operation over a three year period.

1.2 Organic farming enhances the natural symbiotic relationship between photosynthesizing plants and the soils microbiology. When a biological balance is achieved N leaching is significantly reduced.

1.3 Organic farming principles can be applied to conventional dairy farming to achieve significant reductions in N leaching. There are two key steps: (a) increasing plant species and (b) revising fertiliser application. Reductions in N leaching cannot happen overnight but are achievable in the medium term with careful soil management.

1.4 As a result of our organic farming operation, the NRP for the farm has been assessed as 19kg/ha/year. This is significantly lower than most conventional dairy farming operations. The NRP is also likely to be significantly higher than the actual leaching rate as Overseer does not take into account the increase in the floral and microbiological activity and diversity occurring to greater depth in the soil that is associated with organic farm management.

1.5 I am advised that the low NRP is the reason that we are struggling to sell our farm which has been on the market for the last 18 months: The ability to secure bank finance for a less conventionally managed farm due to it being seen as a constrained set of property rights, may be at issue.

1.6 It appears highly likely that the proposed regulatory framework has reduced the value of the farm to prospective purchasers by around $3 million, because our management and innovation has reduced the environmental impact of our operations. The bottom line is that the very best operators from an environmental point of view are the ones most severely affected by the present proposals.

1.7 It is my experience, that PC1 also actively discourages innovative solutions: if you are successful there is the risk that your actual Nitrogen leaching rate will reduce, which will eventually impact your NRP, as it is not clear how the next plan change will allocate the right to leach. PC1 therefore serves as a stark warning to those contemplating voluntary and innovative methods to improve local and regional water quality.

1.8 Moving forward, unless the plan adopts an approach that incentivises all farmers to adopt practicable measures to improve water quality without being penalised, the perverse outcome may be that farmers pollute to the highest allowable level for their property, to avoid losing cash-flow based capital value.

2. INTRODUCTION

2.1 My full name is Harry Wyllie Mowbray. I am the owner and partner in an organic dairy farm located in the Waikato Region.

2.2 My background is in physics and chemistry and I was formerly employed as an industrial chemist by NZ Forest Products at Kinleith where my primary role was process engineering. After leaving Kinleith I started a consulting, importing and engineering company to the Pulp and Paper Industry in Australia and New Zealand.

2.3 Other business interests include the establishment of 700 acres of forestry in the South Waikato and starting up 10 other businesses, all of which are operated by family members.

3. SCOPE OF EVIDENCE

3.1 I have volunteered to provide this brief of evidence in support of the case presented by Oji Fibre Solutions Limited to provide a practical illustration of the way in which in my experience, PC1 as proposed, disadvantages those adopting new management or technologies. From a dairy farming perspective it penalises those whose innovative land use reduces environmental impacts and has reduced the demand for/ value of my farm as compared to the same property under conventional dairy management.

3.2 To explain this I will:

(a) Provide a brief overview of my organic farming operation and its history;

(b) Outline the impact of PC1 on the operation;

(c) Provide an illustration of the effect of PC1 on the sale of my farm; and

(d) Discuss why PC1 deters innovation and will have perverse consequences.

4. NATURE OF OPERATION

4.1 I am the majority owner of an organic certified dairy farm located South of Tokoroa on SH1 within the Waikato River Catchment. The land is identified as being in a Priority 1 catchment. The farm is approximately 875 ha and has been owned / operated by the same partnership since 1986, initially with five partners and subsequently with 2 partners. Approximately 379 ha of the farm are Maori owned leasehold land with the lease on this land expiring 2022. In effect the operation is two farms operating under the same partnership.

4.2 The partnership was involved with starting an organic farmers co-op about 4 years ago. This means that we no longer have a direct association with Fonterra. More than half of the 70 organic dairy farmers in the North Island belong to the new, Organic Dairy Hub, co-op.

4.3 The farm's soil is characterized as pumice and maroa ash. Part of the farm is in native bush, with overall about 60% of the land being utilised for the dairying operations. The native bush on the farm comprises about 90 ha of cut over (but mature bush). On a 2km, 150 metre high face there is a further 40 ha of regenerating native scrub. This native bush and scrub is located on that part of the farm that is on Maori leasehold land. Approximately 8 ha of the freehold land has been designated as a Significant Natural Area. A further approximately 10 ha along the streams has been retired and planted with native and exotic trees. Further extensive tree planting along fence lines is ongoing with 3000 trees planted in the last season.

4.4 When the partnership purchased the farm, pasture quality was low with extensive infestation of ragwort, nodding thistle, blackberry and gorse. The grass species was primarily brown top. The contours were poor, requiring some of the farm to be contoured for improved management resulting in a loss of fertility in the medium term.

4.5 The farm was initially managed using conventional farming techniques, which the partnership subsequently changed to an organic farm operation. The stocking rate under the previous conventional operation and the organic management has remained much the same at around 2 cows to the hectare. The farm is now in its 9th year as an organic farm but it is only in the last 3 years (after the inevitable trial and error associated with any change in farm practice) that we have begun to confidently manage the property organically. Today we supply most of our milk to Green Valley Dairy who bottle the milk for their own brand along with bottling milk for Lewis Road and Puhoi. We are milking between 650 and 700 cows twice a day. We are investigating milking a small, yet to be determined, winter milk herd (from the same herd) once a day.

4.6 The formal process to conversion to a certified organic dairy farm took about three years and follows an intensive audit process of all farm inputs.

4.7 Certified organic farming is characterised by a number of factors:

(a) No use of plant available water-soluble fertiliser (with a particular focus on phosphorus based fertilisers), and no use of urea;

(b) The use of fish based fertilisers to feed the soil biology;

(c) The use of compost tea to enhance the biodiversity;

(d) No use of antibiotics if you wish to supply the broader international market, which we are certified to do;

(e) No use of uncertified chemical sprays; the weed spray used is a plant extract;

(f) No use of bought-in feed other than certified organic feed.

4.8 To farm organically requires a proper working soil in which all of the photosynthetic plants are in a symbiotic relationship with their own specific group of fungi and bacteria in the soil. While some of these fungi and bacteria are universal others are plant specific in order to ensure the parent plant obtains the right nutrient balance.

4.9 Organic farming enhances the natural symbiotic relationship between photosynthesizing plants and the soils microbiology: Fungi and bacteria naturally make plant nutrients available in return for sugars they themselves are unable to photosynthesize. When a biological balance is achieved N leaching is significantly reduced for reasons summarised below.

4.10 In conventional agriculture excess artificial fertiliser is applied. The plant no longer requires the bacteria and fungi to supply it with nutrient so the bacteria and fungi get no sugars and die back.

4.11 Organic farming methods are predicated on the assumption that florally restricted rye-grass and clover pastures found in conventional farming operations do not supply as complete a range of nutrients (with suboptimal health implications for grazing animals). A monoculture of ryegrass maintained through artificial fertiliser limits the diversity of the soil biology as every plant species has its own symbiotic relationship with different fungi and bacteria. By contrast, organic farming operations create diverse pasture with diverse soil biology. Because a diversity of plants results in root nutrient transfer at different depths, this generates a variation in the depth of biology.

4.12 Bacteria fix nitrogen from the atmosphere and they have a 5 to 1 carbon to nitrogen ratio. Protozoa eat bacteria but like most other living animals above bacteria they have a 20 to 1 carbon to nitrogen ratio. Thus, every time protozoa eat bacteria they have to expel 4 nitrogen atoms. This excess of available N occurs in the root zone in the soil and at a time of plant growth and demand, which reduces the potential for leaching. However, once you reduce the diversity of the biology in the soil there is a corresponding reduction in the production of plant available nitrogen which conventional agriculture replaces with more soluble artificial fertiliser. Artificial fertiliser can be and is applied ahead of and out-of-step

with the nutrient demand of plants, further increasing the risk that it will leach beyond the root zone.

4.13 Organic biological systems give rise to a diverse and deeper rooting pasture better able to capture the urea in cow's urine. In a conventional farming operation, when you kill the biology off and reduce the diversity and depth of the biology you have effectively reduced the natural ability of the soil to recycle nitrogen within the soil profile, which results in greater leaching of N than under an organic operation.

4.14 The upshot is that organic farming principles can be applied to conventional dairy farming to achieve significant reductions in N leaching. There are two key steps: (a) increasing plant species and (b) revising fertiliser application.[1] Reductions in N leaching cannot happen overnight but are achievable in the medium term with careful soil management.

4.15 It is also interesting to note that cattle are the best animals to generate healthy soil biology as distinct from lighter animals with lower specific hoof loading and smaller less concentrated waste deposits.

4.16 Our objective as farm managers has been to run a commercial farm with reduced environmental effects. We have had to unlearn a lot of our thinking and we are still on a steep learning curve. And I have no doubt that our understandings will change.

4.17 The NRP for the farm is 19kg/ha/year and phosphate leachate is 1.5kg/ha/year. This is significantly lower than most conventional dairy farming operations. The NRP is also likely to be significantly higher than the actual leaching rate as Overseer does not take into account the increase in the floral and microbiological activity and diversity occurring to greater depth in the soil that is associated with organic farm management.

5. IMPACT OF PC1 ON THE OPERATION.

5.1 Subsequent to PC1 being proposed, but for unrelated reasons, the partnership has been interested in selling the farm, which has now been on the market for 18 months, with limited interest being shown by buyers.

---

[1] The fertiliser needs to be applied in a non-plant available, non-water soluble, non-ionic state.

I am advised that this is because of the farm's low NRP relative to conventional dairy farms in the same area. There is little incentive to purchase a farm with a low NRP. The ability to achieve high returns (inclusive of capital gain) from organically managed farming properties is, comparatively, less certain than with conventional agricultural practices. Additionally, the ability to secure bank finance for a less conventionally managed farm due to it being seen as a constrained set of property rights, may be at issue.

5.2 It appears highly likely that the proposed regulatory framework has reduced the value of the farm to prospective purchasers because our management and innovation has reduced the environmental impact of our operations. Much of a farm's value appears to be dependent on the ability to provide leeway within which the farm can alter its stocking rates or fertiliser application.

5.3 The converse argument also applies. The proposed regulatory framework which is designed to improve the region's water quality principally benefits those farms operated with high farming inputs and high levels of off-site pollution. PC1 serves as a stark warning to those contemplating voluntary and innovative methods to improve local and regional water quality, or even innovation for business reasons.

5.4 We estimate that PC1 has reduced the capital value of the farm by around $3 million. The bottom line is that the very best operators from an environmental point of view are the ones most severely affected by the present proposals.

Innovation

5.5 In my view PC1 actively discourages innovative solutions because if you are successful there is the risk that your actual Nitrogen leaching rate will reduce, which will eventually impact your NRP, as it is not clear how the next plan change will allocate the right to leach. What this means is it is commercially attractive for farms to retain a high rate of N leaching. This has the perverse effect of people wanting to continue to pollute to reduce the risk of lowering future capital value and cashflow. As an organic farmer I am actively exploring a number of options for improving leaching

rates, but I will be loath to implement any changes in case they result in further lowering the already low NRP of the farm.

5.6 As I understand the plan change, as drafted, the Farm Environment Plan mechanism does not mandate any ongoing reduction in the NRP (except perhaps for the top 25% of N dischargers, depending on the detailed requirements of “certified industry” FEP’s).

5.7 With respect to meeting limits versus achieving percentage reductions, I favour the former approach, as it would be very difficult to operate our farming system while achieving further percentage reductions. The reasonable assumption is that the cost per unit of reduced N leaching will increase the closer a land owner gets to zero N discharge.

5.8 With respect to Overseer, as noted above, my concern as an organic farmer is that it takes no account of the increase in the floral and microbiological activity and diversity occurring to greater depth in the soil associated with organic farm management. On the other hand, our operations show achieving a limit is comparatively easy where conventional practices are supplemented by organic farming principles relating to soil management.

5.9 It has still been my direct experience that having a low NRP does impact the capital value of the farm. Moving forward, unless the plan adopts an approach that incentivises all farmers to adopt practicable measures to improve water quality without being penalised, (which is happening to us), the perverse outcome may be regulation that farmers pollute to the highest allowable level for their property, so they don’t lose cash-flow based capital value. We have to be smarter than that.

Harry Mowbray