

## Case Study 4: Turley Farms Ltd

### 1. *Base information*

Turley Farms LTD is a family owned business operating in Mid and South Canterbury, We farm in two water management Zones, Ashburton and the Orari, Opihi and Pareora Catchment Zone. Our business is large scale grain, seed and vegetable production with 1200 hectares being farmed at Pendarves Mid Canterbury and 2000 hectares being farmed in South Canterbury at our Orton and Milford Sites. All the cropping business provides support to our 1000 ha dairy business that is based at Klondyke. Growing is the main enterprise of the cropping business, but wintering dairy cattle and fattening lambs between crops is also a significant part of our business. The majority of the land is fully irrigated and intensively farmed which enables us to employ 35 full time staff and 10 seasonal casual workers.

### 2. *Rotation*

**Description:** Our farming business supports a wide range of some 12-15 different crops, that are only viable due to the range of soil types and availability of irrigation water we have. We aim only to grow first year cereals, break crops tend to be fitted in and around the cereal crops which is quite complex as they all have different return times (see table below)

Category	Break between planting (yrs)
Cereals	2
Ryegrass seed	3
Potatoes	5-6
Hybrid vegetable seeds	10
Clover seed	3-5
Onions	2
Brassica seeds	5-10 depending on type

We aim to take catch crops of green feed between cereals and spring planted crops, this makes good use of the land but also provides a means of utilising any leftover nutrient from the harvested crop that otherwise could be lost out of the soil profile during the winter rainfall period. The green feed crops are utilised by our lamb fattening enterprise and also supports our own dairy business.

**Length of rotation:** Varies, but a typical simplified rotation may be:

Year 1:	Cereals (March - finish Feb) – Green feed March – August (grazed) Onions (Aug – Feb Mar next year)
Year 2	Cereals (May – Feb next year)
Year 3	Grass Seed (Feb – Jan next year) with grazing from June to October
Year 4	Potatoes (Sept/Oct - March/May)
Year 5	Wheat (May- Finish February/March)
Year 6	Clover, or small seeds, or Green feed followed by peas or maize/corn in spring
Year 7	Wheat (May- Feb)

### 3. *Irrigation*

Irrigation is key to the success our business. Since purchasing our first centre pivot movable irrigators in 1993, considerable investment in machines and infrastructure has been made, to the point that 95% of our cropping land is under irrigation. We aim to use our resource wisely, aiming only to provide the crops requirements to maximise yield and nutrient utilisation. In more recent times, we have strived to put in the most efficient systems that are available and to the future we will be looking to adopt the use of variable rate systems as the technology becomes affordable. We monitor weather and soil moisture

to determine when to irrigate and aim only to apply enough water that the soil is capable of holding. We aim to avoid runoff and prevent soil erosion.

Some crops require more water than others and we consider this when placing these around our farm. Potatoes and grass seed crops have high demand to secure the potential yield, a typical season's requirements could be 250-500mls. We tend to concentrate available water to the higher value crops and the least forgiving. All our irrigation is recorded on our farming software for purposes of management and costing and all water is metered in line with consent requirements.

#### 4. *Fertiliser use*

We employ the services of a full time Agronomist, Roger Lasham, who has over twenty years of experience in advising farmers on crop agronomy. Our fertiliser policy is to provide only the crop requirements, based on yield potential of the crop and the level of nutrients currently available from the soils reserves. We ascertain soil nutrient supply by regular intensive soil sampling for Lime, Phosphate and Potassium requirements. Over the past 3 seasons we have grid tested every square hectare we crop and now have the ability to map our nutrient variation and apply fertiliser at a pre-programmed prescription to each and every individual Hectare. This process has enabled us to be more efficient with our fertiliser use, reduced over and under fertilisation and reduces potential losses to the environment. (see maps supplied as appendix to evidence of Roger Lasham).

Nitrogen level measurements are taken in the spring, after winter rainfall, to determine the soil reserves of Nitrogen that potentially will be available for crop use, any shortfall will be supplied by regular Nitrogen applications based on the crops yield potential and any quality requirements.

5. *Management practices including practices to reduce potential for leaching*

- Variable rate application of fertiliser
- Agronomic advice with understanding of yield goals and crop removal
- Advanced farming systems (controlled traffic farming and GPS)
- Efficient irrigation
- Soil testing (deep N)
- Grid testing of Ph, P , K &Mg
- Computerised record keeping and reporting systems
- Feedback for proof of placement
- Rotation
- Irrigation to achieve target yield
- Plant testing (protein analysis)
- Using Catch crops to mop up surplus nutrient between crops.
- Cropping after grazing stock in winter to utilise residual nutrients left by stock(dairy support)
- Regular machinery maintenance and calibration

6. *Global Gap*

We currently grow vegetable crops to Global Gap standards and are audited each season on our farming practises. To grow to Global Gap standards we have to be accountable for good farming practises and grow crops with minimal impact to the environment.

7. *Economic information*

We aim to use all our resources as economically as we can and expect to get a return on our investment in land, irrigation and the people we employ. The protection of our resource is essential and by farming with good agricultural practises we aim to reap maximum return with minimal impact on our

environment. Farming has to be sustainable into the future and we feel that the practises we have in place are working to an end goal of efficient farming with minimal pollution of our environment.