



Water woes not new to Selwyn District

Fluctuating water flows in the Selwyn area are nothing new for Greendale farmer Doug Gough. By **Janine Holland**, for Environment Canterbury.

Farming on the banks of the Selwyn River, the fifth generation farmer's understanding of the catchment has been honed through experience and exposure to the river's varying flows.

"It always goes underground at the main south road at Dunsandel and it is normal to be underground at this time of year," says Doug Gough.

"People complain about the river being dry but we have never swum in this stretch of the Selwyn, it's always very dry. The Waimakariri River at Sheffield went dry one summer in the 1900s before irrigation came about. Low river flows are not a new thing."

The way farmers and the regional council manage waterways has changed significantly in the past few decades and Doug says that's also had an impact.

"If you go back 50 years, there was much more intervention by the catchment boards, now there's a completely different approach. It's more of a user pays situation."

With less flood control work, vegetation has taken off in the main stem of the river, particularly gorse and broom.

"My father remembers the riverbed was completely free of gorse and broom, it was back to back clear shingle. Today there's very little exposed shingle compared to 10 to 15 years ago."

As gorse and broom are legumes, Doug believes they release nitrates into the waterways which could be a contributor to the catchment's nitrate problems.

Changes in the foothills are also impacting on the availability of water.

"There's a lot more forestry planted in the foothills behind Whitecliffs and Glentunnel, which has been taking up water as opposed to letting it run off."

Irrigation is not a major determinant of what's happens to the Selwyn River in the mid plains, as there's no irrigation above the farm, just to the sides, says Doug. Further, the farm's irrigation well is not linked hydraulically to the Selwyn River because of its depth.

The biggest variable affecting the river's flow is rainfall, and Doug says despite rain – the last three winters have been extremely dry.

"In 2013 we had a very wet winter and our well level at 60 metres deep rose significantly because of the winter recharge, both snow and rain. The three winters since have been very dry."



Yes, there has been rain but not enough to saturate the soil and go through.”

The wet spring provided a ‘reprieve’ for many farmers, but the ongoing dry has resulted in declining or absent flows at Coes Ford and other lower parts of the catchment.

“If we look at the Selwyn River and look at Coes Ford, and the amount of development that has gone on with septic tanks and lifestyle blocks in the area, there’s a lot of water being taken out and effluent being put into the ground.

“However there will be opportunities with Central Plains Water to augment the Selwyn River through the releasing of flows.”

Protect your soils and everyone benefits

Doug says good management practice is about looking after your land and water resources with the future generations in mind.

On his 230 hectare property, bisected by the Selwyn River, Doug’s first priority is farming for his soil types and climate.

With a mixture of soil types from riverbed and stony soils through to silt and clay with greater water holding capacity, Doug has learnt to vary his irrigation and cropping rotations to suit various soil types. Crops grown on the farm range from dry peas for export, grass, radish and cabbage seed, corn salad, mustard and buckwheat. Milling wheat and feed barley

complete the suite, which is supplemented by dairy grazing, hogget and lamb grazing. However, no grazing takes place on the banks of the Selwyn River as the land is lighter. Instead this area is managed as a forestry block.

Irrigation was first set up in 1978 with a side rolls system. As there was never enough water to get around all the paddocks, “we had to be very selective where water went”. Because of this, they’ve always been efficient and careful water users. To make sure they achieve best practice, Doug taps into the expertise of Tony Davoren from Aqualinc (formerly HydroServices).

“We were one of Tony’s early clients and we’ve been with them ever since,” he says.

Neutron probes installed since 1984 help them keep a close eye on soil moisture and watering reliability.

“We’ve never over-watered, and some of our crops don’t get enough water. Others only get water at the end of the season, not to increase yield, but to increase seed weight.”

Having a side roll irrigation system means more labour time shifting the system around, but Doug says this keeps you on your toes.

“If you have to shift your irrigator, you have to make choices and only put on water where it’s really needed.”

Now with a centre pivot as well, they can be more precise with their water application.

“We also leave space in the soil profile to hold any rain that falls so we don’t have any leaching or run-off.”

With water scarcity, Doug farms as if it’s going to rain and takes into account his crop mix and plant needs.

“We’re still trying to capture as much rainfall as we can and we’re very conscious of irrigation moisture. It’s a good thing not to forget the dryland techniques just because we are irrigated.”

His other big mantra is maintaining the health of his soil.

“My focus is building up the soil so it holds more moisture. Incorporating crop residue and earlier plantings, so as a crop matures early it uses more of that winter/spring rainfall.”

He’s learnt the hard way to farm to his conditions.

“One ryegrass crop in the 1980s took seven irrigations before we got to yield. It was the wrong type of grass for this farm. So we changed variety species after that. This released more water for other crops which means a better outcome. The same amount of water can go twice as far.”

Adapting farmer practice will be fundamental to maintaining sustainable farming in the future, he says. But he cautions time to transition is important along with sound evidence that new practices work.

Doug believes there’s potential for the regulator to work more closely with farmers, utilising science to come up with innovative solutions to catchment-scale water issues.

“It would be great if Environment Canterbury could work with farmers by monitoring regional irrigation sites. Some farmers start irrigating before they should.

“If we had access to soil moisture data from a range of sites, that would help us work out when we really need to commence irrigation,” he says.

“This doesn’t take away from farmers measuring soil moisture themselves, but would be a good way of creating a more adaptive system by incorporating rainfall forecasts, soil moisture assessments and so on which would benefit everyone.” **WNZ**