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IMPLEMENTATION OF AN AUDITED SELF-MANAGEMENT (ASM) PROGRAMME; A CASE STUDY OF BARRHILL-CHERTSEY, A MID-CANTERBURY IRRIGATION SCHEME

Nicole Matheson and Sarah Hayman

Irrigo Centre Limited, 326 Burnett Street, Ashburton 7700

Email: nicole@irrigo.co.nz

BCI Command Area

BCI is a farmer owned co-operative irrigation scheme located in Mid Canterbury, located between the Rangitata and Rakaia rivers, as shown in Figure 1. The scheme first delivered water in the 2010/2011 season and has grown to irrigate approximate 24,000 hectares with a Farm Environment Plan managed area of around 60,000 hectares over 227 properties.

Irrigo is a joint irrigation scheme owned administration and environmental service provider based in Ashburton. Irrigo provide environmental support to the BCI scheme.

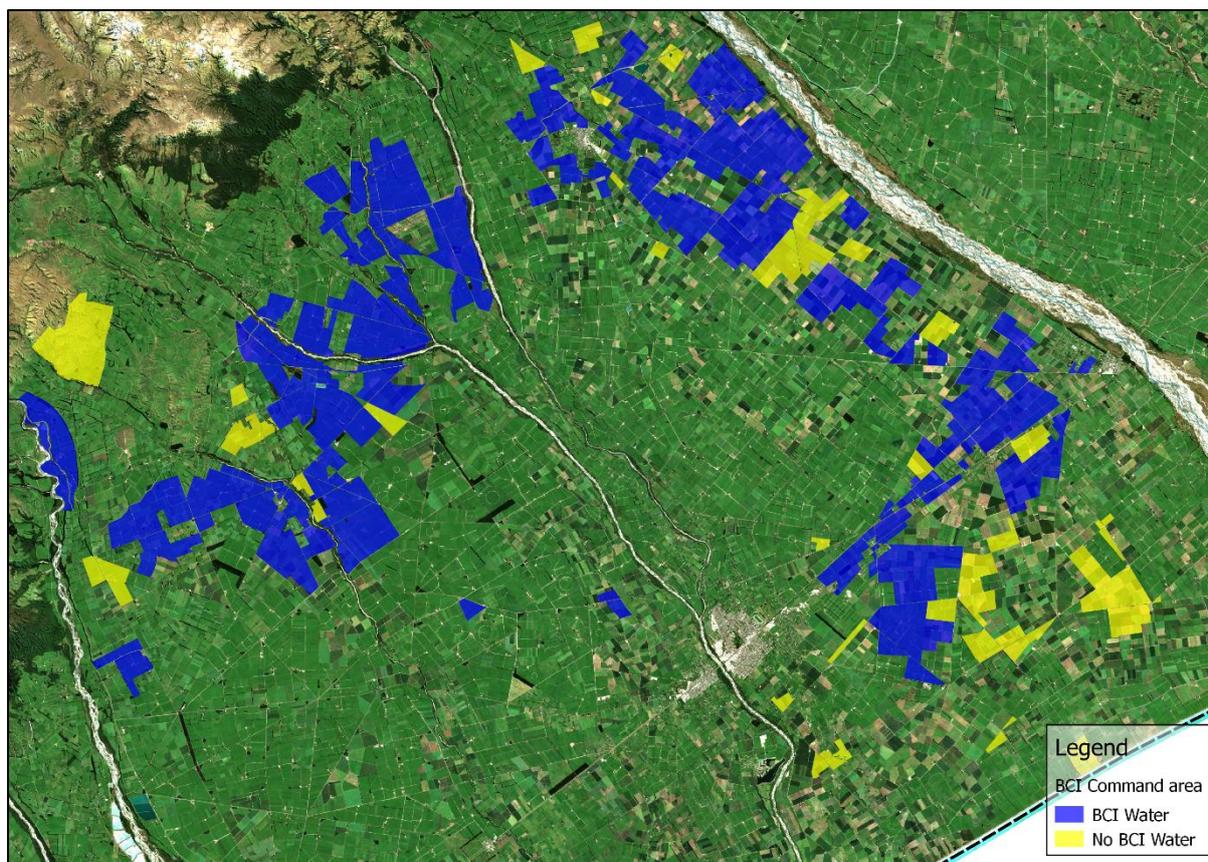


Figure 1: BCI Command Area

Continuous Improvement

BCI was the first scheme and consent to be audited under a nutrient limit cap, in New Zealand which follows the Canterbury Water Management Strategy, then the scheme as a collective developed the Audited Self-Management or ASM Programme.

Practice

The ASM programme requires all shareholders to have a Farm Environment Plan (FEP), with some shareholders operating with these for the last 5 years. Figure 2 illustrates the ASM programme process. The FEP includes on farm practices that centre around the following;

- Irrigation;
- Nutrients;
- Soil;
- Effluent;
- Waterways;
- Point source; and
- Non-irrigation water use.

Evaluate

A key aspect of our scheme is to ensure our shareholders operate at Good Environmental Management Practice through the ASM Programme to ensure BCI complies with consented nitrogen loss limits. All shareholders require their FEP's to be independently audited, with the audit frequency based on their audit grade. All shareholders are also required to provide annual nutrient budgets and BCI reports on the scheme nitrogen loss and audit outcomes annually to Environment Canterbury.

Review

All shareholders are required to update their Farm Environmental Plans annually to ensure they are on track with actions identified in the audit and to identify any potential increases in nitrogen loss through intensification.

BCI has supported shareholders with improving the Audit grades by running a series of workshops on irrigator maintenance, calibration, scheduling, fertiliser spreader calibration and nitrogen loss. In total, BCI have had over 140 shareholders and staff attend our own workshops, with around a further 50 attending Irrigation New Zealand courses as well.



Figure 2: Illustration of the ASM programme implemented for the BCI scheme.

BCI Audit Results

Improving audit grades is a major driver and helps individuals assess their on farm environmental risks.

The results (as shown in Figure 3) show over the four years since the program began B grades have decreased with A grades increasing. In the 2018/19 season, no D grades were awarded and C grades reduced by 75 %.

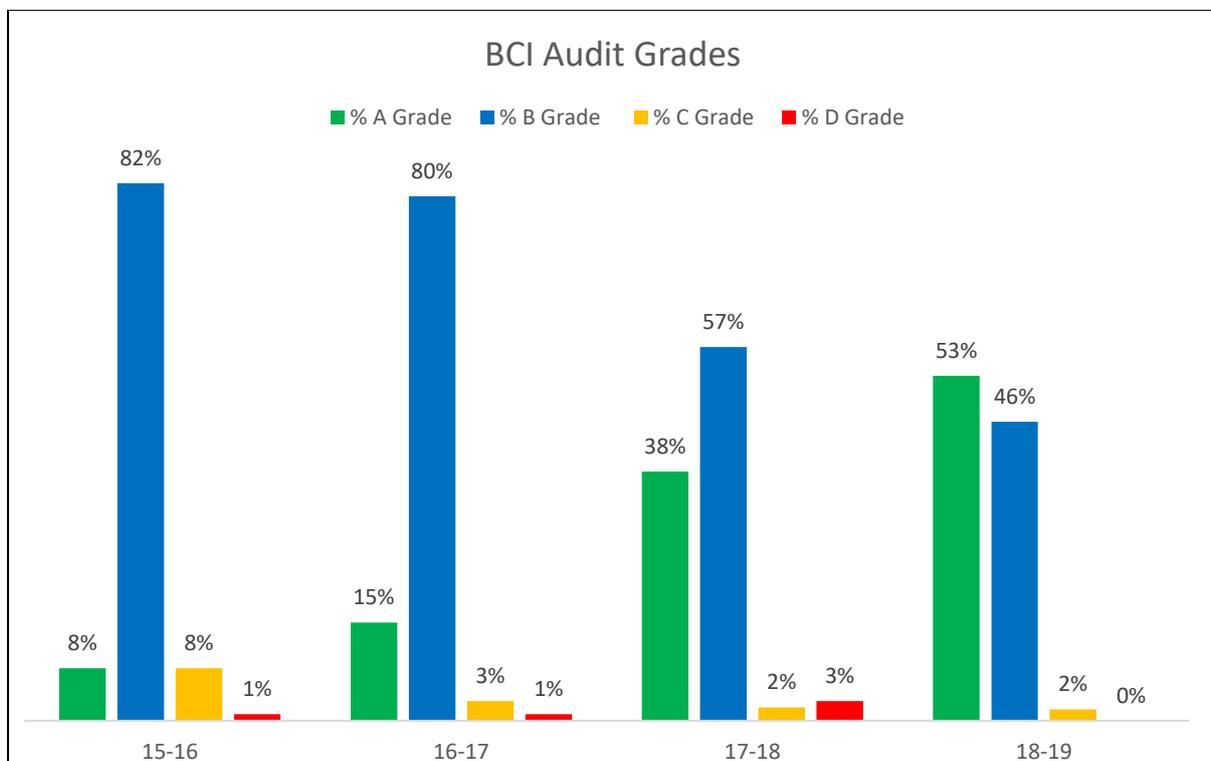


Figure 3: BCI Audit grades (2015/16 to 2018/19).

Improvements in the overall audit grade results were largely due to shareholder achievement of the irrigation target and objectives, as shown in Figure 4.

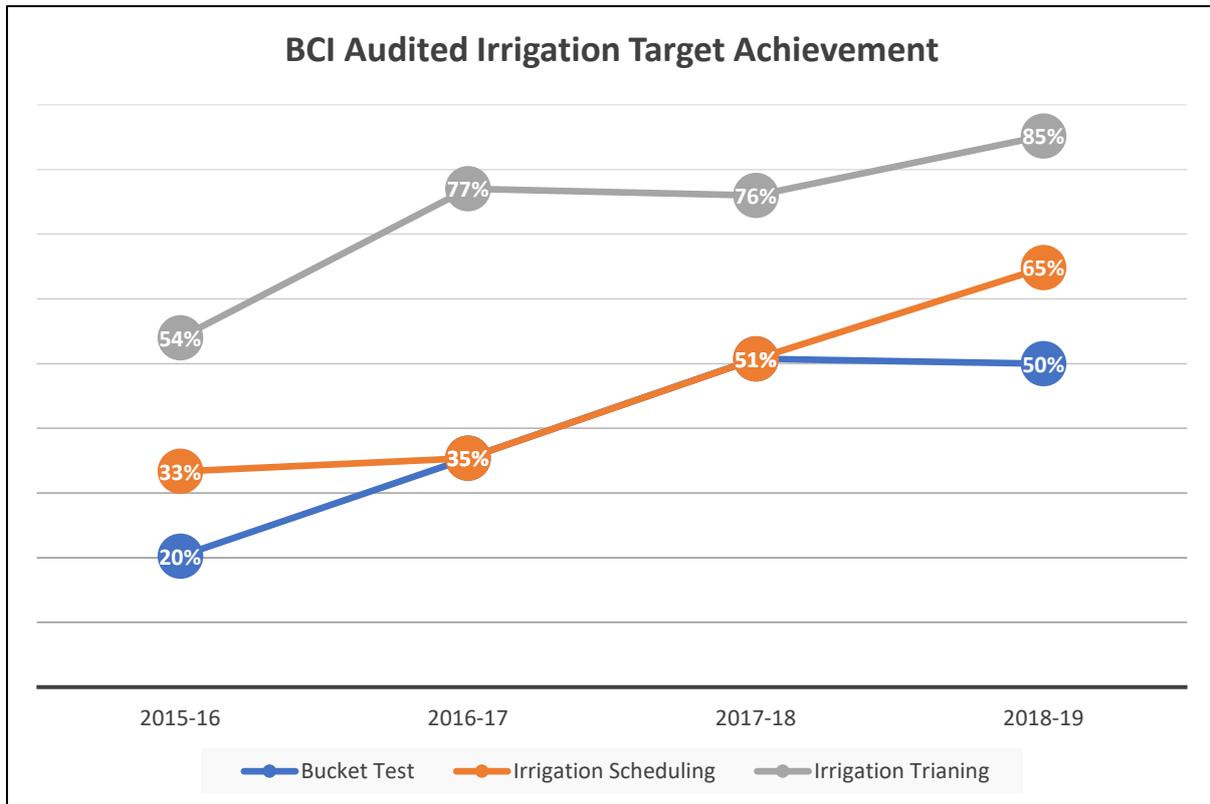


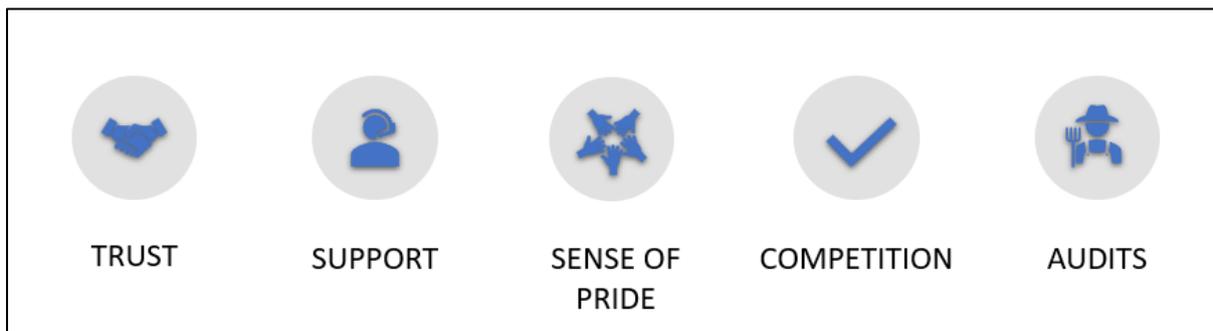
Figure 4: BCI Irrigation Target Results (2015/16 to 2018/19).

Irrigation training is provided as part of the scheme’s costs and this is why there was a large increase early on in the programme.

However, for irrigation scheduling and irrigator performance testing, the audits were a major driver for these increases. Hence, a slower uptake compared to the irrigation training.

Successes

Irrigo have found the most effective tools to improve practice have been to develop relationships with our shareholders and truly understand their motivations and needs, as well as encourage peer discussion groups and competition, rather than enforcement of strict property N loss limits.



Trust

The major success is TRUST between shareholders, BCI and the Irrigo Environmental Team. For example, one shareholder received two D grades and was unengaged in the programme. However, after meeting with different members of the environmental team on different occasions, the shareholder has since reduced his on farm environmental footprint and now understands his responsibilities by enlisting trust in the process. ADVOCACY is a big part of trust, for the programme this involves shareholders being able to call someone, help with submissions on national and regional plan and policy changes, and submissions on behalf of the scheme specific to the area between the Rakaia and Rangitata Rivers. The majority of the feedback Irrigo receives from shareholders is centred around that they would rather the Environmental Team guide them through good management practices than be required to have a land use consent to farm. This is evident over the proportion of FEP audits Irrigo have managed compared to the total in Canterbury.

Support

Trust and Support go hand in hand, Irrigo have supported through the scheme's workshops, one on one Farm Environment Plan updates and helping shareholders navigate through environmental requirements.

Sense of Pride

Being a representative of a scheme provides SENSE OF PRIDE, as people are essentially part of a team – not judging a person on their own decisions but the effect their decisions might have on the scheme.

Competition

Shareholders have been motivated by COMPETITION and peer pressure between each other. Shareholders compare audit grades with neighbours through word of mouth, driving improved audit grades.

And finally, when all these successes are combined, BCI have seen an improvement in the Audit grades.

Challenges

As well as there being some great successes, shareholders, BCI and the Environmental team have also experienced some challenges.

Farming to a Number

Nutrient Budgets are a useful tool allowing Regional Councils to manage intensification, steering farmers in the right direction with their on-farm practices and helping with on farm mitigation.

However, at a catchment scale annual nutrient budgets are resource hungry, both time and cost. With workarounds, time taken for science to be included i.e. plantain and frequent changes in the model undermining farmers trust in the model. Irrigo haven't seen value in

Nitrogen loss limits being implemented on farm, as the natural response when working to a number limits continuous improvement.

Moving Landscapes

Moving Landscapes is also another challenge shareholders face. Environment Canterbury has gone through seven plan and policy changes since BCI started providing water in the 2010/2011 irrigation season. As well as the National Policy Statements for Freshwater, Highly Productive Land and Indigenous Biodiversity and potential amendments to the Resource Management Act, Changes to the Health and Safety Act, Dam Safety Regulations, M. Bovis and tightening of financial lending. All these changes cause uncertainty for shareholders, BCI and Irrigo's Environmental Team as it is difficult to provide advice on changing environmental requirements.

The saying goes "Confidence proceeds investment" and with so much uncertainty, farmers are unsure when and where to make on-farm improvements as they want to be confident that any investment won't need further money spent due to further changes in rules and regulations, which is unfortunate as industry prices at the moment are all really high.

Consistent Advice

Lastly, Irrigo have struggled with consistent advice being provided to shareholders and farmers from all players in the industry i.e. comments around irrigator performance test "Bucket test" being a waste of time.

Summary

To summarise our findings from the ASM programme, these are the three key messages that stand out;

- Support: Peer, Scheme and Environment team's support – through FEP updates, pub talks, workshops
- Building relationships with people is crucial for success
- Trust has allowed great achievements within the scheme

These three learnings combined have allowed shareholders to be more confident in their on farm environmental outcomes and this has been demonstrated in improved audit grades over the years. Irrigo hopes these will continue to increase in years to come.