

Technical Case Study – Ref 5.1.1a

The Effects of Agriwater's Water Treatment Technology on the cleaning and maintenance of irrigation systems at HN Pieterse Farming - 2013 to 2016

HN Pieterse Farming wanted to improve soil health and water infiltration down the soil profile, thereby increasing rooting depth and the volume of soil in which they farmed. Apart from all this, at a farm level, poorer water quality and blocked & dirty irrigation systems were costly and time consuming challenges on the farms.

Given primary benefits of the RainBox as optimised water quality, clean irrigation systems, uniform irrigation distribution and aerated soils, with secondary benefits listed as improved soil microbial activity and soil respiration, better root and crop development and more uniform, resilient and healthier crops – all appeared to fit in with his soil restoration plan and irrigation requirements. It was therefore with expectation that Christoff Smit installed the first RainBox in July 2013.

As with all micro and drip irrigation systems, the constant cleaning, unblocking of drippers etc., was a standard costly and time consuming practice on the farm. The plugging of emitters is one of the most serious problems associated with micro irrigation use. Emitter plugging can severely hamper water application uniformity. On top of this, constant backwashing and cleaning of filters are required. Emitter plugging can result from physical (grit), biological (bacteria and algae), or chemical (scale) causes, or is frequently caused by a combination of these factors.

The following improvements in labour use and cleaning effects were recorded in the grape (160 ha) irrigation and management system from before and after installation in 2013 and the improvements still remain the same till this day. The information in Table 1 was supplied by Christoff Smit, as per HN Pieterse Farming records, practices and procedures.

Table 1. Comparison in labour use and irrigation system cleaning on HN Pieterse Farming before and after installation of Agriwater Water Treatment Technology

	Before Agriwater Treatment	After Agriwater Treatment
Labour reductions per 100 ha grapes	Always used 5 labourers to unblock and fix drippers, flush pipes and check leaks. Had continual problems with blocked and damaged drippers.	Now only has 1 labourer. No longer has to check the drippers, because they are always clean. The labourer now only flushes the pipes and fixes leaks. The grapes have no blocked drippers.
Filters	Used to clean every 2 weeks.	Now only clean once every 3 months for peace of mind.
Backwashing	Automatic backwashing was set for every ½ hr for 1 min.	Now automatic backwashing is set for every 2 hrs for 30 secs only.

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