

Water Compliance for Citrus Packhouses: Risk & Solutions

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Why GlobalGAP?

- GlobalGAP is primarily concerned about FOOD SAFETY issues, i.e. human health risks (*E. coli*, *Salmonella*, *Listeria*, fungicide and pesticide residues)
- GlobalGAP **does not** focus on QUALITY issues
- *Penicillium* (green/blue mould) and *Geotrichum* (sour rot) cause economic loss through fruit decay (quality)
- They are NOT human pathogens in the context of fresh citrus consumption

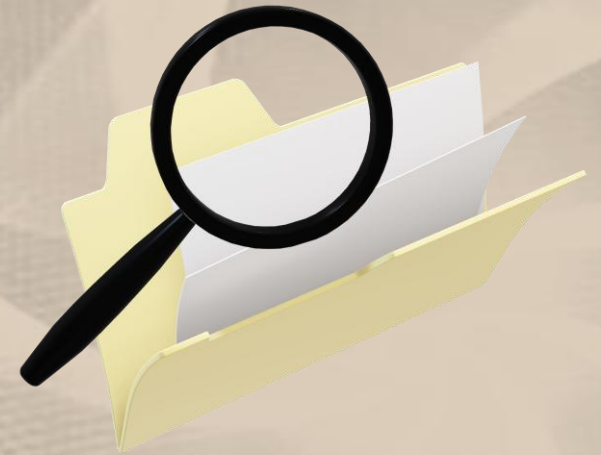
So, why this concern then?

Well, here's where it gets important:

- GlobalGAP **DOES** require general packhouse hygiene and sanitation, which includes:
 - Clean facilities
 - Sanitation schedules (facilities, workers, water)
 - Prevention of cross-contamination
 - Documented cleaning procedures
- So while GlobalGAP doesn't specifically test for or regulate *Penicillium/Geotrichum* levels in dump tank water, the hygiene practices required would reduce their spread

Put another way...

- GlobalGAP certification requires that all water contacting fruit in the packhouse meets **potable water standards**
 - in other words: **zero** detectable *E. coli* per 100mL
- This applies to:
 - Dump tank water
 - Washing systems
 - Any water that touches export-grade fruit



How does this affect you

- Most packhouses recirculate dump tank water over multiple days
- Without proper treatment and sanitization, this water accumulates organic matter, fungal material and bacterial contamination
- This creates a compliance failure point during GlobalGAP audits
- Heavily contaminated water carries a high fungal particle load
- This WILL lead to contamination of all fruit in the bath

Current industry reality

- Water testing and proper sanitation are often inconsistent
- Many operations risk audit failure not because they lack water treatment, but because they can't demonstrate documented compliance with consistent monitoring and control
- “Audit speak” translated:
During the normal packhouse operation, how do you measure to know?
How do you prove your claims of safe water?
Prove your compliance!



Fast forward to the financial risk

- Bluntly put: Without GlobalGAP certification, you risk losing access to export markets and major retail chains
- Consider a loss scenario at a fictitious price: 1 Million Cartons @ R100/carton

Your expectation	Reality without compliance **	Financial impact
Export market: R100/carton yielding R100 mil income*	Forced to local processing: R25/carton	R75 million loss
100% export quality	Mixed local fresh/processing: R60-65/carton	R35-40 million loss
Premium pricing	Local market only (oversupplied): R65-70/carton	Conservative estimate: You risk R30-50 million in lost revenue

* this reflects gross income

**per million cartons processed and if GlobalGAP certification is lost or denied

Non-compliance = price crash

- Processing-grade citrus pays 75% less than export (R25 vs R100/carton)
- Local markets can't absorb large volumes at export prices
- Buyers know non-compliant operations are desperate to move fruit
 - Your purse is now in their hands
- And, of course... there is the reality of reputational damage

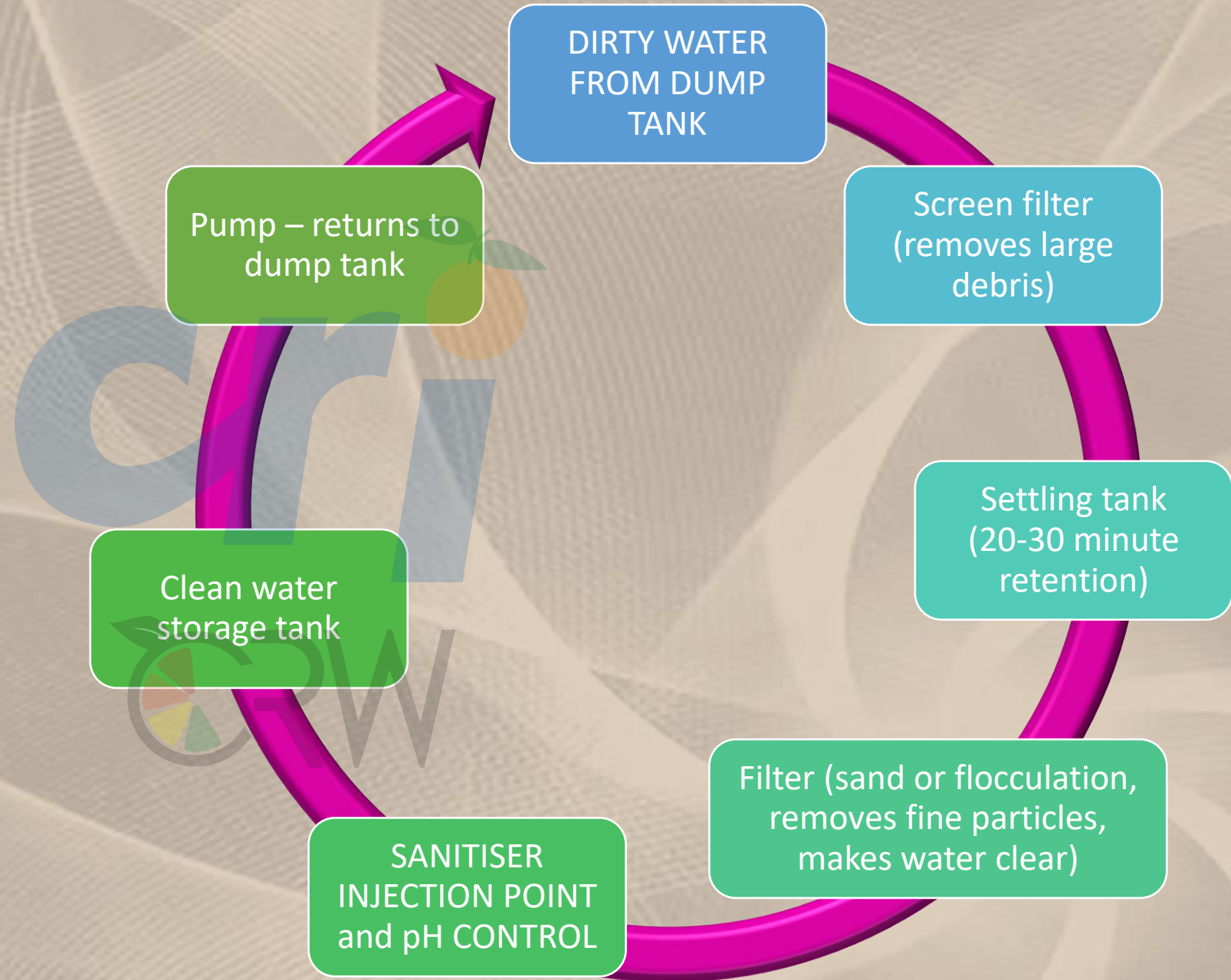
The solution: a practical compliance system

- A properly designed water recycling system doesn't need to be complex or expensive
- However, it needs to be:
 - ✓ Compliant
 - ✓ Maintainable
 - ✓ Documentable
- What does a recommended system with an enhanced basic configuration look like?

Not the looks, but the actions

1. Removes visible contamination (fruit debris, leaves and twigs, other contaminants like soil, fungal debris)
2. By using filters and/or flocculation it clarifies the water through filtration and settling
3. Sanitizes continuously with acceptable and suitably registered actives
4. Measures sanitiser levels and enables controlled sanitiser dosing
5. Monitors water quality with daily testing and regular lab verification
6. Enables documentation of everything required for audit compliance

Typical system components

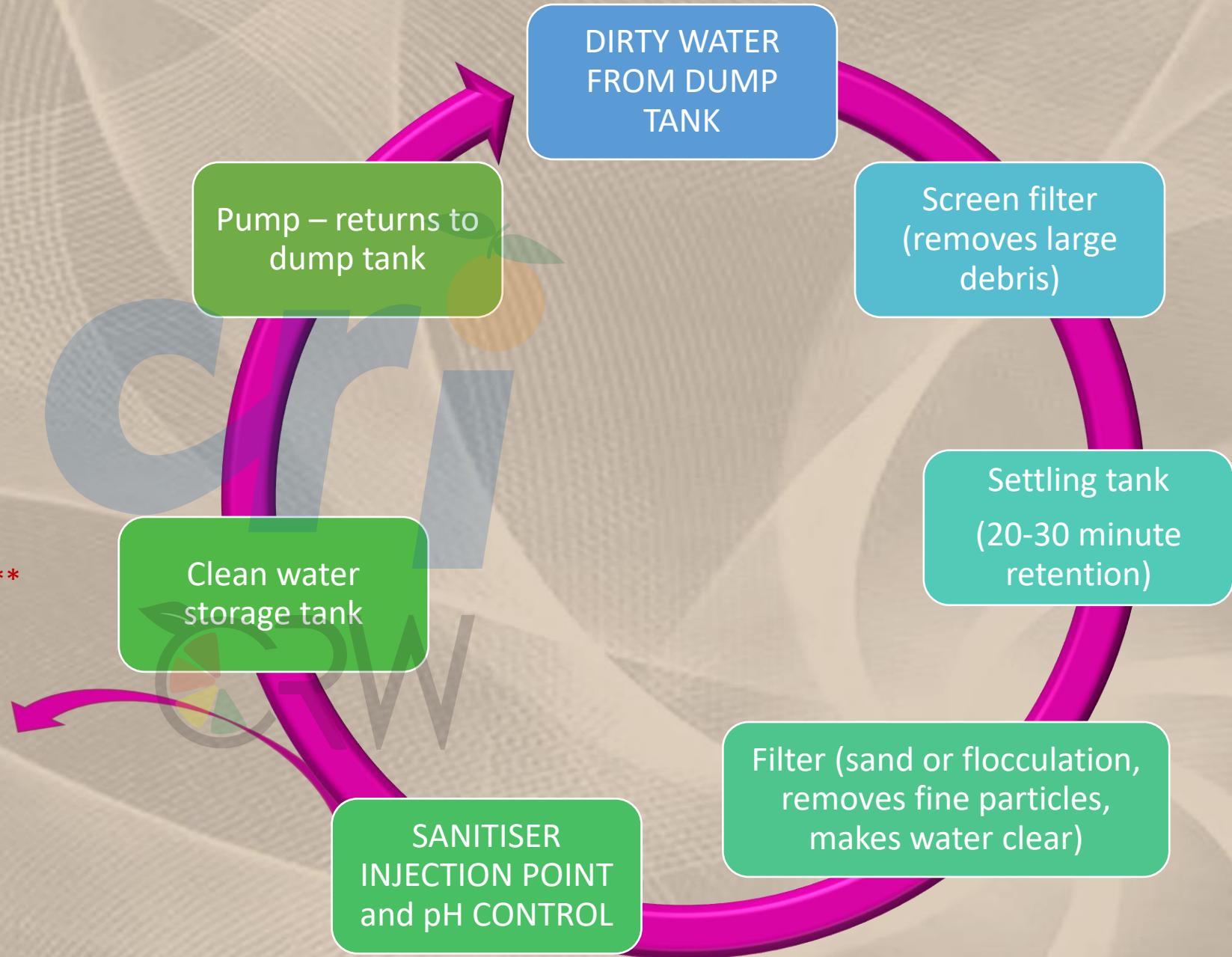


Typical system components

SANITISER INJECTION POINT and pH CONTROL**

- Maintains chlorine at 100-150 ppm
pH 6.0 – 7.0
- Maintains PAA at 0,1 – 0,2% solution
pH < 6.5
- Maintains CHT at 5% solution
pH < 6.5

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What compliance gets you

- ✓ Water that meets GlobalGAP (microbiological) standards
- ✓ Consistent, repeatable sanitiser levels (critical for audit)
- ✓ Reduced fresh water consumption (>> 50% savings)
- ✓ Confirmed testing protocols with **documented** records
- ✓ Accredited lab analysis for compliance verification

What you need to do:

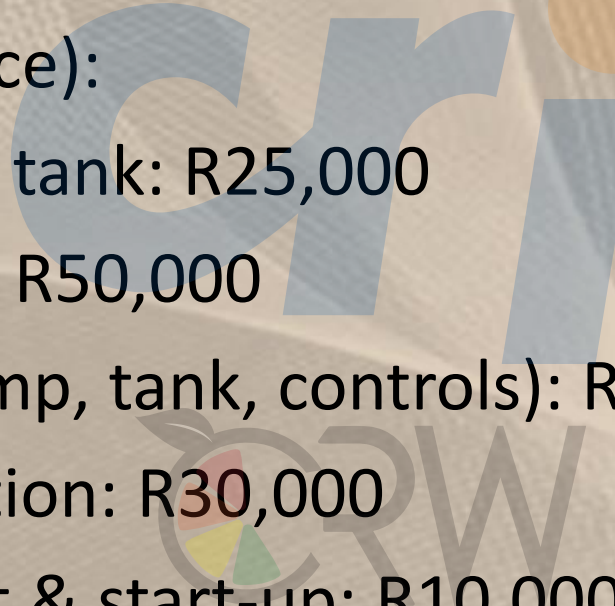
- Daily: Test sanitiser levels, clean screens
Backwash sand filter, check chemical levels
- Weekly: Check stock, follow up on record keeping, check backwash procedures
- Monthly: Send water for lab testing, do system maintenance
- Audit time: Show your records (they prove compliance)

The investment vs. the risk

System Cost: R110,000 - R235,000

Breakdown (average price):

- Screen filter & settling tank: R25,000
- Sand filtration system: R50,000
- Sanitation system (pump, tank, controls): R55,000
- Piping, valves, installation: R30,000
- Monitoring equipment & start-up: R10,000
- Contingency for site-specific needs: R30,000



The math that matters

- Investment: R150,000 - R200,000 (typical mid-range installation)
- Risk without it: Can be up to R30-75 million in lost revenue per season
- Protection ratio: Your investment represents 0.2-0.6% of your potential loss

Additional benefits:

- Water cost savings: R150,000-R300,000/season (at typical municipal rates)
- Drought resilience: Operate during water restrictions
- Regulatory compliance: Avoid municipal discharge penalties
- Market credibility: Demonstrate environmental responsibility

The decision

Remember: what you can measure, you can manage.

This isn't about ROI on water savings – this is risk management

Take a look at three scenarios:

1. Do nothing: Risk audit failure and R30-75M loss
 2. Minimal compliance: Install basic system without proper monitoring – still risk audit failure
 3. Proper compliance: R150-200K investment protects your entire export business
- The system pays for itself if it prevents losing just 2,000 cartons to processing instead of being exported



Take-home message

- This is not an optional upgrade – it is essential infrastructure to protect your export business
- When water quality isn't managed properly, you're not just losing chemicals down the drain—you're increasing the chances of fruit arriving at export markets with quality issues that damage both your returns and your reputation
- The cost of compliance is negligible compared to the cost of losing market access

Again: Every drop of water in your packhouse is either protecting your fruit or putting it at risk



Thank you!

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