

## Hydrochloric acid dearth could affect citrus industry

South Africa is experiencing a shortage of hydrochloric acid (HCl), a crucially important chemical used in citrus packhouses. Although alternative acids are available, packhouses need to exercise caution when selecting a replacement.

According to Wilma du Plooy, post-harvest disease programme coordinator at Citrus Research International, the HCl shortage was due mainly to South African plant failures or shutdowns, which were likely to continue for at least several months. A small amount of HCl was manufactured by the local timber industry, with all excess being directed to the gold mining sector.

HCl is used in packhouses to adjust the pH level of both the post-harvest Imazalil fungicide solution and the chlorine wash system.

Du Plooy advised packhouses to use peracetic acid sanitisers in Imazalil baths.

"The added benefit here is that it also serves to lower the pH of the solution, so alternative pH adjustments are not necessary.

"Packhouses should, however, consult their suppliers if using peracetic acid in fungicide baths for the first time, as heating and incorrect dosage may lead to phytotoxicity and worker discomfort. Peracetic acid also needs to be topped up



The shortage of hydrochloric acid in South Africa could affect the citrus industry, as it is used in packhouses for cleaning. FW ARCHIVE

regularly to maintain the concentration and subsequent biocidal activity."

Alternative acids were also available to assist packhouses in getting through the citrus season without major disruptions.

Du Plooy recommended sodium bisulphate as the best option.

"Other acids can also be used, but there are several critical warnings: many organic acids are not only expensive, but are broken down by chlorine, which subsequently deactivates the biocidal efficacy of the chlorine.

"Acetic acid is a very simple acid and, although an ingredient in peracetic acid, will not interact negatively with chlorine.

"As is the case with HCl, it may be reactive towards concrete with a high lime content and should be used judiciously."

She also cautioned that although phosphonic acid could be used as a proxy, it would contribute to the residues of fosetyl and phosphonic acids left by preharvest applications of phosphonates, and could result in maximum residue levels being exceeded.

"Nitric acid is a better replacement and is compatible with chlorine. However, it is aggressively reactive with the calcium bonds in concrete and will destroy any area [of concrete] it comes into contact with." – *Lindi Botha*

## New open-source infrastructure for agri industry

The Linux Foundation recently launched the AgStack Foundation, a dedicated open-source digital infrastructure project for the agriculture sector.

Sumer Johal, executive director of AgStack, said in a statement that the global agricultural ecosystem desperately needed a digital makeover, as the industry was suffering too many losses in the absence of reusable tools and data.

AgStack would address this by providing an open repository to create and publish models, free and

easy access to public data, inter-operable frameworks for cross-project use, and topic-specific extensions and toolboxes. It would also leverage existing technologies and standards, public data, models and open-source projects.

The creation of a shared community infrastructure filled a gap in the current agtech software landscape, Johal said.

Russel Luck, CEO of online auction platform SwiftVee, explained the concept behind open-source infrastructure to *Farmer's Weekly*: "[I]f you wanted to build a 'digital

house', you would need to build the hammer and nail before you could [use them]. Open-source means someone lets you access their code, or 'hammer and nail', so you can build onto that code with your innovations or creations."

In the absence of an agri-specific open-source platform, developers would need to keep building the 'hammer and nails' from scratch, which would duplicate work and create barriers to further innovation.

Another advantage of an agri-specific open-source environment

would be that developers could find solutions that they did not even know existed, he explained.

Having such an open-source infrastructure would allow South African developers to leverage pre-existing code bases that would have global applications.

"South African software engineers are among the best in the world, particularly in the agri-tech sector.

Their skill sets will become huge catalysts to agri-tech innovation that push the digital economy further," Luck said. – *Glenneis Kriel*