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Harvest Minerals Limited ('Harvest' or the 'Company')
KPFÉrtil Produces Superior Results to Conventional Fertilisers in Coffee Trials

Harvest Minerals Limited, the AIM listed remineraliser producer, is pleased to announce the initial results of long-term trials on the effectiveness of KPFÉrtil compared to conventional chemical fertiliser on coffee plants.

Highlights

- Initial results from long-term trials on coffee plants show KPFÉrtil is superior to conventional fertilisers
- Key biometric measurements were taken after first six and twelve months:
 - Six months – with the exception of stalk diameter, all biometric measurements showed superior results when KPFÉrtil is used rather than conventional fertilisers
 - Twelve months – all biometric measurements showed superior results when KPFÉrtil was applied, despite additional phosphate being added to the conventional treatment after the first six months
- Trials are being conducted by the Associação dos Cafeicultores de Araguari ('ACA') in Brazil

Brian McMaster, Executive Chairman of Harvest stated, *"Since we conducted our first agronomic studies in 2016, our knowledge of the application and potential of KPFÉrtil has grown exponentially. These latest results, which are part of a wider programme of long-term agronomic studies, show what we have long suspected – that KPFÉrtil is superior to conventional fertilisers for coffee.*

"Additionally, we have been working with several large coffee grower customers around testing the benefits of KPFÉrtil through composting with organic waste and manure to promote the growth of natural bacteria, crucial in good soil development. These tests are producing exciting results, which we will release in due course.

"Much of the development and testing work which commenced several years ago is coming home to prove the importance of KPFÉrtil, which is very timely to aid our marketing initiatives as we continue to build our business. We have always said that Harvest has the right commodity, in the right place and at the right time; this has proven to be highly prophetic."

Full Details

In order to better understand the significant benefits of using KPFÉrtil and on the best methodologies to apply the product, Harvest has been conducting a wide variety of agronomic trials on many different crops since 2016. The latest agronomic results are from test work started in 2018 under the supervision of the Associação dos Cafeicultores de Araguari (ACA) and were carried out at their Campo Experimental Izidoro

Bronzi. This site was developed in August 2009 in partnership with the Procafé Foundation, Ministry of Agriculture, University of Uberaba and the Brazilian Coffee Research and Development Consortium to promote research into the various areas of coffee growing, focussing on irrigation works, nutritional treatments, phytosanitary and cultural treatments, in addition to genetic improvement and coffee quality.



Figure 1: The KPFétil trial area at Campo Experimental Izidoro Bronzi.

Method

In total, four lines of immature coffee plants (Acauã Novo) were planted. The first line comprising 201 plants was treated with standard chemical fertiliser, whereas the other three comprising 203, 208 and 207 plants respectively, were treated with KPFétil.

Application

- The ground was treated with Ammonium sulphate and urea to provide adequate levels of nitrogen and sulphur
- The first line (standard treatment) was treated with 500kg/ha of Yoorin Master (70kg/ha P_2O_5) and 200kg/ha of simple super phosphate (SSP) SuperPhosphate (42kg/ha P_2O_5) for a total of 112kg/ha P_2O_5 and 108kg/ha of Muriate of Potash (MOP) containing 65.9kg/ha of K_2O
- The three KPFétil lines were treated with 3,295kg of KPFétil for a total 112kg/ha of P_2O_5 and 65.0kg/ha of K_2O
- In addition, the first line (standard treatment) was given an additional 100kg/ha of monoammonium phosphate (MAP) containing 54 kg/ha of P_2O_5 after six months, 10 and 12 months and 100kg/ha of SSP containing 38kg/ha of P_2O_5

After every six months, a series of biometric measurements were taken comprising the number of internodes (nodes develop into leaves or branches), branch length, plant height, number of branches, diameter of canopy (the total area covered by the above ground portion of the plant) and the diameter of the stalk.

Results

After the first six months, the average biometric results (Table 1) show that, with the exception of the stalk diameter, the coffee plants were responding better during this key initial period of growth to KPFétil than

to the combination of traditional fertilisers while the plant nodes (where leaves or branches will grow) are still developing.

Treatment	Number Internodes	Branch Length (cm)	Plant Height (cm)	Number of Branches	Diameter of Canopy (cm)	Diameter of Stalk (cm)
Conventional	5.2	14.1	24.9	5	34.1	0.83
KPFétil	5.2	14.4	28.1	5.1	39.9	0.78
% Change	0.00%	2.13%	12.85%	2.00%	17.01%	-6.02%

Table 1: Average Biometric Results after six months

After the first six months, the ACA agronomist decided to apply additional phosphate in the form of MAP and SSP every two months to the conventional treatment, to replace nutrients that had been lost due to leaching. However, as KPFétil loses very little nutrients due to leaching, no additional KPFétil was applied.

Despite this, the results after twelve months show that the plants treated with KPFétil showed much better growth including stalk diameter with on average a 19.63% increase in the number of internodes, 12.56% increase in branch length and a 4.74% increase in the number of branches. As these all directly impact the development of coffee cherries, by extrapolating out these results, a grower would expect a significant increase in coffee yield compared to conventional fertilisers.

Treatment	Number Internodes	Branch Length (cm)	Plant Height (cm)	Number of Branches	Diameter of Canopy (cm)	Diameter of Stalk (cm)
Conventional	10.7	39	68.4	23.2	46.3	17.3
KPFétil	12.8	43.9	68.9	24.3	52.1	18.1
%	19.63%	12.56%	0.73%	4.74%	12.53%	4.62%

Table 2: Average Biometric Results after 12 months

Next Steps

These are long term trials and are expected to be continued over a number of years. During the dry period, a second application of KPFétil and conventional fertilisers was applied to their respective lines and after another six-month period the next set of biometric measurements will be taken.

The ACA regularly hold field days to demonstrate the research it is conducting, and Harvest Minerals attended the latest event on the 14 September 2019 entitled “The Life of Soil” to discuss the benefits of KPFétil to the attendees.

This announcement contains inside information for the purposes of Article 7 of EU Regulation 596/2014

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For further information, please visit www.harvestminerals.net or contact:

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Notes

Harvest Minerals Limited (HMI.L) is an AIM-quoted low-cost and high margin Brazilian fertiliser producer, located in the heart of the largest and fastest growing fertilizer market in Brazil.

Our product, KPFétil, is a registered and approved organic multi-nutrient direct application fertiliser. It contains many of the essential nutrients and minerals required by plants and, unlike most fertilisers, it does not require any complex processing or chemical alteration, instead it can be applied directly to crops.

KPFétil is produced at the wholly owned Arapua project, that consists of a fully permitted mine, production and storage facilities able to produce and deliver KPFétil to customers. Known mineralisation at the Project is expected to support 100+ years' production at 450Ktpa.

Our focus now remains on growing our business and we have the dedicated in-country sales and marketing team with the skills, experience and contacts to sell KPFétil into the potential multi-Mtpa market on the doorstep of the Project.