

FIELD AND GREENHOUSE TRIALS DELIVER STRONG RELATIVE PERFORMANCE FOR CABINDA PHOSPHATE FERTILIZER

New results expected to deliver significant CAPEX savings

HIGHLIGHTS

- New results reported from three years of field trials in Angola and five seasons of greenhouse trials at the International Fertilizer Development Center (IFDC).
- Trial results underpin recently released DFS¹, delivering a phosphate fertilizer product from a simple flowsheet that meets the market with strong relative performance at an attractive price point for compelling economics.
- **A review has been commissioned to simplify the flowsheet and is expected to deliver significant CAPEX savings.**
- Cabinda Phosphate Rock contains ~31% total P₂O₅ and 8.7-9.5% P₂O₅ soluble in 2% citric acid. The field trials in Angola trialling maize, wheat and potatoes have shown a strong agronomic effect with large yield increases.
- Yields in Minbos field trials are consistently much higher than the average yields in Angola, with Cabinda Phosphate Fertilizer performing strongly vs. other products (up to 90% of the yield increase provided by Monoammonium Phosphate (MAP) and equal to the MAP-Phosphate Rock blends).
- Results in IFDC greenhouse trials demonstrated that a single application of Cabinda Phosphate Fertilizer before the first crop can improve yields in two successive crops without further application. Wheat, maize, soy and sorghum were trialled successfully.
- Importantly, trials confirmed Minbos' phosphate rock is suitable as a direct application fertilizer product in a soil acidity profile of <pH5.5 (H₂O). This includes much of the area of interest for the Angola Fertilizer and Farm Productivity Program (AFFPP) which is targeting 120,000tpa of Cabinda Phosphate Fertilizer².
- The latest results have further confirmed the simplicity of the production flowsheet required to produce the Cabinda Phosphate Fertilizer requiring only the core equipment consisting of

¹ASX Announcement – DFS delivers compelling economics for Cabinda Phosphate Project (17th October 2022)

²ASX Announcement - MOU lodged for the Angolan Fertilizer and Farm Productivity Program (24th August 2022)

the crusher, dryer, and bagging plant with associated ancillary equipment.

- Building initial phosphate levels in soils to achieve durable crop productivity and yield benefits has been used successfully to develop major farming regions, including the development of new Cerrado farms in Brazil and historically in Australia through the Superphosphate Bounty Act (1941)³.
- The IFDC and the World Bank have advocated building soil phosphate capital in Africa and their research has helped the world understand the benefits of incorporating a large application of phosphate rock into soils in the first year of cropping.
- The trials have validated Minbos' research and development led approach to tailoring a fertilizer product for local climate, crops and soils.

Commenting on the trials, Minbos CEO Lindsay Reed:

"The latest trial results are the culmination of five years of research and development work to develop a fit for purpose fertilizer product for local markets.

Our product development journey started with an idea to enhance phosphate rock with water soluble phosphate. From there, the Company has systematically stepped through a series of trials that teased out improved performance at competitive price points.

Key learnings from the greenhouse and field trials include water soluble phosphate enhances phosphate rock, but they can be applied separately; finer sizing is better but only at higher rates; phosphate rock performs better when it is mixed rather than banded in the soil; Angola's soil acidity promotes solubility; and Cabinda Phosphate Rock keeps delivering results in the second and third season.

We will simplify the flow sheet for the Cabinda phosphate plant, with existing equipment to match the new trial results and will continue product development to match the development of agriculture in Angola and deliver value for shareholders."

Minbos Resources Limited (ASX:MNB) ("Minbos" or "the Company") is pleased to announce results from five seasons of greenhouse trials at the IFDC facility in Alabama and three seasons of field trials in Angola covering six crop plantings in ten different locations.

The trials show that Cabinda phosphate rock can be used as phosphate nutrient for specific crops in Angolan acidic soils with high rainfall which promotes the dissolution of the phosphate rock.

³ Superphosphate Bounty Act 1941 (No 65 of 1941)

The Company also undertook trials to compare the performance of beneficiated vs. compacted vs. granulated blends.

Further supporting the Company's decision to test its phosphate rock in trials was the IFDC and the World Bank advocating building soil phosphate capital in Africa.⁴ Their research has helped the world understand the benefits of incorporating a large application of phosphate rock into soils in the first year of cropping.

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The Company's decision to be a primary producer of Phosphate Fertilizer to a local market hungry for fertilizer, combined with the Company's inhouse mining and agronomic expertise, has allowed Minbos to deliver a fertilizer product that works for local industry and the emerging small holder farmer market in Angola.

Field and Greenhouse Overview

The IFDC carried out Greenhouse Trials at its Muscle Shoals campus using Cabinda Phosphate Rock products in various crops and soils with the following trials (Fig. 1):

- Winter Wheat in extremely acid, neutral, and alkaline soils (2018/19);
- Maize in acid-neutral soils (2019);
- Soy in acid soil (2020);
- Residual Winter Wheat in acid soil (2020/21);
- Residual Sorghum in acid soil (2021); and,
- Soy in acid soils comparing granulated vs compacted forms (2021).

⁴Sanchez, P.A., K.D. Shepherd, M.J. Soule, F.M. Place, R.J. Buresh, A.-M.N. Izac, A.U. Mkwunye, F.R. Kwesiga, C.G. Ndiritu, and P.L. Woomer. 1997. Soil fertility replenishment in Africa: An investment in natural resource capital. p. 1-46 In R.J. Buresh et al. (ed.) Replenishing soil fertility in Africa. SSSA Spec. Publ. 51. SSSA, Madison, WI.



Figure 1 – IFDC greenhouse trials including Winter Wheat and Sorghum.

The Angolan Institute of Agronomic Investigations, a government institute under supervision of the Ministry of Agriculture, carried out field trials in more than 10 locations in consultation with the IFDC and under the supervision of Dr Luis Prochnow (Fig 2.), the former program director for the International Plant Nutrition Institute in Brazil with the following trials:

- Maize with Beans (2019/20);
- Maize, Beans and Potato (2020/21); and,
- Maize, Beans and Potato (2021/22).



Figure 2 - Dr. Luis Prochnow of the Nutrição de Plantas Ciência e Tecnologia investigating Minbos field trials completed in conjunction with the Angolan Institute of Agronomic Investigations.

Key Results

Phosphate must be soluble to be available for plant uptake. Phosphate Rock solubility is related to the 'a-value' of the apatite mineral lattice. Substitution of CO_3 for PO_4 and sometimes OH for F in the apatite mineral lattice changes the a-value making the mineral lattice weaker and more soluble.

The IFDC measured the a-value of Cabinda Phosphate Rock at 9.3599 and concluded it was suitable for direct application in soils with pH (in water) <5.5 following field to access crop suitability. Solubility is enhanced in acid soils and high rainfall.

Greenhouse trials have confirmed that Cabinda Phosphate Rock is appropriate for direct application in soils <pH5.5(in water) in certain crops. Also, Cabinda phosphate dust (<100 micron) significantly outperformed Cabinda phosphate rock at higher P rates. There is no evidence that combining Monoammonium Phosphate (MAP) with Phosphate Rock in the same granule/tablet enhances the dissolution of Phosphate Rock better than placing the products separately in the same ratio.

Cabinda Phosphate Rock residual crops tended to outperform in each successive crop after a single high-rate application to the first crop (Figure 3). This is robust evidence supporting the benefit of an initial capital investment application of phosphate.

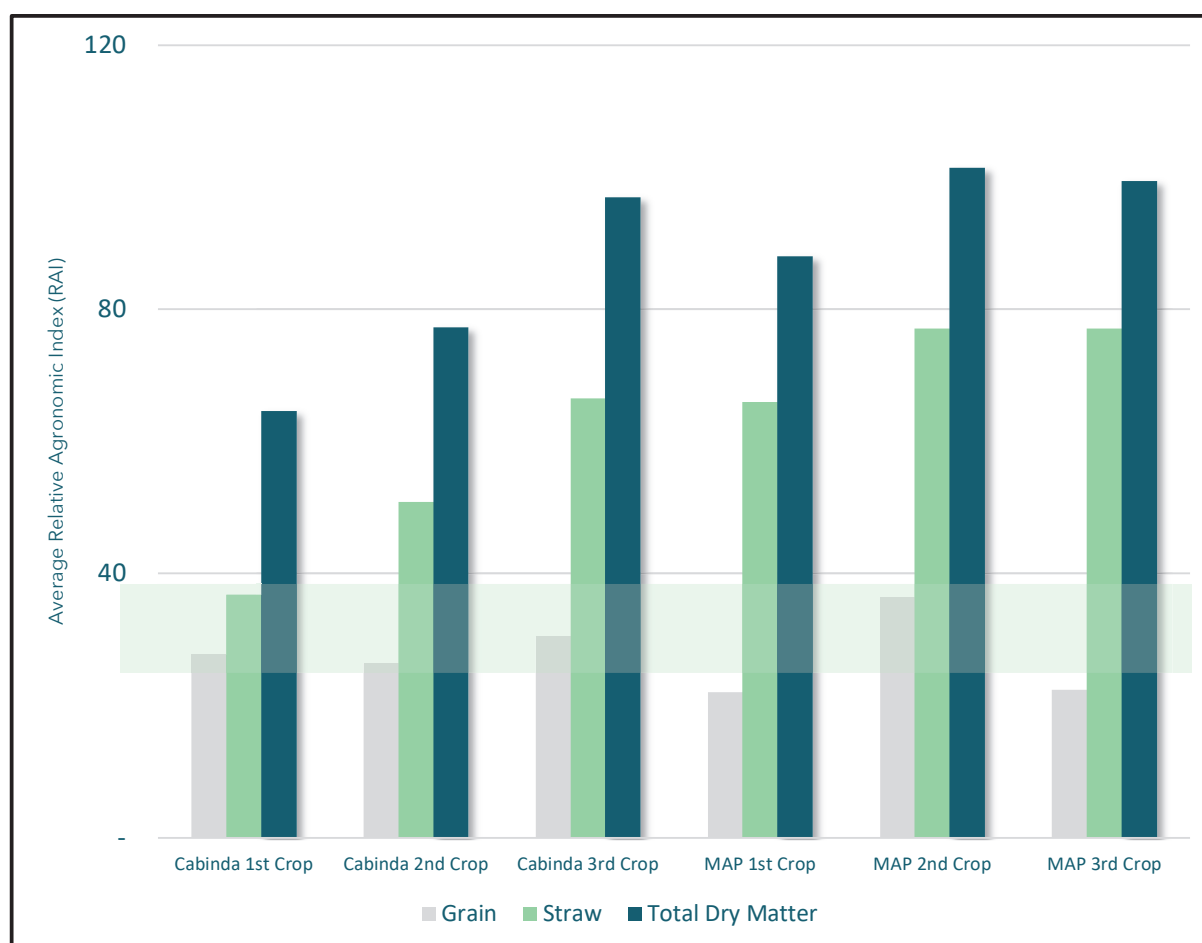


Figure 3 - IFDC greenhouse trials for Sorghum yield: fresh application at high-rate vs two residual crops (g/pot).

Field trials demonstrate Cabinda Phosphate Rock provided 90% of the yield increase provided by the MAP. The performance was similar for broadcast or incorporated application. Cabinda Phosphate Rock provided an increase in yield over the control (no P fertilizer); for Maize 87% and for beans 47%.

Importantly, the yields in the most recent field trials, including the zero-fertilizer control treatment, were much higher than the anecdotal average yields in the same locations. It is likely that education provided under the IFDC program regarding seed quality, soil preparation, plant spacing and weed hygiene, will have also have a positive effect on yields in Angola.

Granulated blends of WSP (Water Soluble Phosphate) with Cabinda Phosphate Rock showed no clear advantage compared to Cabinda Phosphate Rock in field trials. The Cabinda Phosphate Rock provides 90% of the yield increase provided by the MAP and at a competitive price point. (Figure 4).

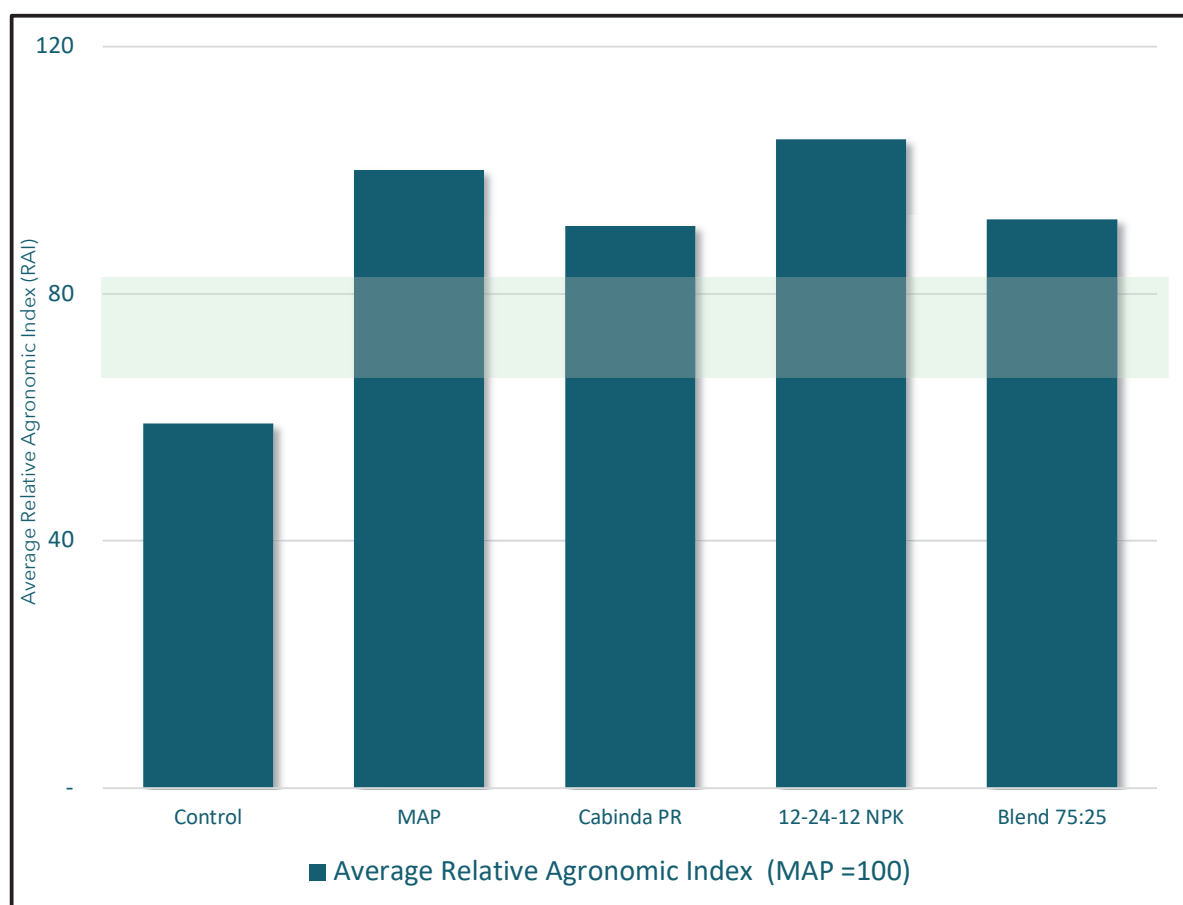


Figure 4 - Average Relative Agronomic Index (RAI) from eleven field trials in Angola with response to various phosphate sources (MAP = 100)

As a direct result of the most recent field trials, the Company is pursuing a simplified production strategy that involves only the core equipment consisting of the crusher, dryer, and bagging plant with associated ancillary equipment that will require significantly less capital investment.

To produce Cabinda Phosphate Fertilizer, Phosphate Rock will be ground to 95% passing 1mm and dried to 3% moisture to allow simple transportation and application. Greenhouse trials confirmed that finer material performs better at high P – Rates. Phosphate Rock will be applied at high P –rates (~ 400Kg/ha) by broadcast or incorporation with tillage as a one-off capital investment in phosphorus in year 1.

The Company will continue to provide updates on the work being done to the flowsheet.

The Company acknowledges the assistance of Dr. Luis Prochnow of the Nutrição de Plantas Ciência e Tecnologia (NPCT) and Dr. Upendra Singh (IFDC) who have been instrumental in designing and producing the agronomic reports for the field and greenhouse trials.

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This announcement is authorised for release by the Board of Minbos Resources Limited.

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Compliance Statement

With reference to previously reported Scoping Study Results, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

Forward Looking Statements

Statements contained in this release, particularly those regarding possible or assumed future performance, revenue, costs, dividends, production levels or rates, prices, or potential growth of Minbos Limited, are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.