**Project No.:** S1/04

**Project Title:** Establishing suspension fertilisers as a viable option in South Australia

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**Executive Summary**
Commissioning and testing of the slurry mixing plant was successful. The slurry mixing plant was useful for preparing 400 L batches of suspensions of various types, and was an valuable asset when preparing experimental suspension and clear liquid batches for the MAC trial and demonstration program.

Trials undertaken to evaluation the benefits of suspension fertiliser application were completed. The results of these trials support that best practice for cereal production on the highly calcareous soils of low rainfall SA should involve the use of NP fluid fertilisers containing micronutrients, principally Zn, Mn and probably Cu. The results also show that on the calcareous soils of Eyre Peninsula, several nutrients are likely to be limiting and interdependent and may only be effective if applied together.

Issues relating to the preparation and use of suspension fertiliser relate to problems of crystallisation during storage. In particular, crystallisation in suspensions containing N, P, micronutrients and K and or Mg is likely to be a major problem. It has also been a problem with NP suspensions stored for any length of time, e.g. between seasons. Some of the products used in the trial programs would be quite suitable for mix and go suspensions with a minimum amount of preparation, provided constant agitation is applied. Sulphuric acid may be useful as a blend for longer-term storage but this can be hazardous and expensive.

Evaluation of suspension fertilisers compared with clear liquid and granular fertilisers supported previous findings that phosphorus responses with suspensions demonstrate higher efficiency and effectiveness compared with standard granular applications in terms of P use on highly calcareous soils. Mixing micronutrients with suspensions was found to maximise improvements in nutrient efficiency.