# *Latest Research News*

The nutrient management of small scale tobacco farming systems poses new challenges with regards to the delivery, application and the efficacy of the products being used to address the nutrient requirements of tobacco, the soil nutrient status and the general impact on the environment.

The challenge with the delivery and application of normal lime opened the door for new products to address soil acidity and this lead to the introduction of CalSap (www.optimaagriculture.com.au) by Pepperfresh which has resulted in a new look at the general fertilization practices of both the field and the seedbeds.

The research started 2 years ago at the various research stations and Pepperfresh has focused on 4 main objectives:

1. The control of fertilizer generated acidity with the use of Calsap both in the seedbeds and the field.
2. The improved efficiency of applied granular fertilizer by using clever biostimulants found in Kelp (But we are also looking into other options).
3. Improved all round nutrient management by focusing on the trace elements that can be combined with the biostimulants for simplicity of application.
4. The improved collection and analysis of soil and other related nutrient management data primarily to address the efficiency of the fertilizer being used but also to provide a more comprehensive account of soil nutrient status and associated environmental impact. This component is captured in our AGIQ component of our business.

## Progress so far:

*First phase*

The first year of research tried to get an idea of how much, where and when to apply the two new products, namely Calsap and Afrikelp. The results were varied and often not statistically significant because of the high variance in the data but in all cases where Calsap was applied at 10l per ha near or on the fertilizer there was an average increase of 150kg of tobacco and generally the quality improved. Afrikelp had a significant impact on the rooting volume of the seedlings.

*Second phase*

The second phase of our research focused more on using our products to reduce fertilization. The experiment protocols included 2 new blends of Afrikelp named Afrikelp

plus and Afrikelp complete. The first set of results for the seedbeds has now been published.

The results in all the experiments have been astounding. The reduction of basal fertilizer by 30% in the seedbeds together with the application of Calsap and Afrikelp resulted in huge increases in seedling germination and survival (Up by approximately 40%). The results were all statistically significant and clearly support the use of these products in the seedbeds. The significant reduction of fertilizer also has obvious benefits with regards to logistics and environmental impact. Some clever data collection of root volume also showed the increase in root volume and the seedlings produced were often a better quality.

We should have our field results in the next 2 months.

## Data collection

As mentioned we also have encouraged our customers (Mostly tobacco merchants and large corporates like Silverlands) to collect more soil data in a strategic manner to improve fertilization. The general trend so far is that the nutrient status of the soil continues to show a need for pH correction, K nutrition and trace element management, but the soil phosphate status, especially under continuous cropping, is high to very high. This has resulted in us looking at ways to reduce the use of phosphate fertilizer as high phosphate status in the soils has potential environmental problems. This year some of the customers have collected or are going to collect more soil data both in the seedbeds and the fields which should give us a better picture. But all our results in the trial clearly show that we can reduce fertilization and still get good quality and yields of tobacco. New blends will also be designed for these circumstances.

## Conclusion

The introduction of kelp based biostimulants with chelated trace elements (Afrikelp plus) and soil pH control products (CalSap) has opened doors to make tobacco production more efficient and environmentally friendly without compromising yield or quality. Research results and the latest soil data clearly indicate the need to shift and change the standard practices of tobacco production which will benefit the growers and the industry in small scale tobacco production.