

# Roelie Steyn

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## DEMONSTRATION PLOTS RESULTS

These demonstrations were done in the Southern Cape on the farm Korenhof, Klipdale in Bredasdorp district. The farmer is Mr. Dirk Hanekom. This is a Mediterranean area with about 450 mm rainfall (60% winter and 40% summer) The enterprise exist of high bred merino's on dry land Lucerne and grain farming. The rotation system is: dry land Lucerne for about 5 years, wheat (yr 1), canola (yr 2), wheat (yr 3), barley (yr 4 & 5). Lucerne is under sowed during yr 5.

The soils of this region is high in carbon (>2%) as a result of the rotation. The soils are Bokkeveld shales (about 200 mm deep) with very good chemical balances between cations.

This specific camp was utilized as Lucerne, canola and wheat (yr 2). The soil was tilled with a ghrop and the seed was planted by a DBS planter. About 25 kg/ha N and 12 kg/ha P was band placed at planting. The formula was DAP and urea. The blend also include 14.6% ZCMS. ZCMS is a product consisting of Cu, Zn, Mn, Ca and S. It is used as filler in bulk blends.

It is not common practice to top-dress wheat in yr 2, due to good N reserves. Due to very good rains during the season of 2006 the farmer decided to top-dress the wheat on this camp. He top dressed with 65 kg/ha urea and 65 kg/ha Black Urea.

Nico van Schalkwyk, the Profert agent in this region monitored the performance of the plants. He and the farmer picked some differences in the growth and on my visit I decided to determine the biomass and the chemical uptake of the plants.

My own established approach is to remove plants of a known area, cut the roots and weigh the mass. This gives me the biomass which I convert to kg/ha. The whole plant is analyzed as well as the moisture. On the results from the lab, I calculate the amount of nutrient uptake regarding the dry mass as kg/ha instead of percentage. In this plots the area was 275 mm X 600 mm.

This gave me a good interpretation to declare what the differences are in the uptake of the elements. As a result of this, the improvements were:

N	25.1%	(65 kg/ha)
P	6.8%	( 2 kg/ha)
K	50.9%	(153 kg/ha)
Ca	50.8%	(10 kg/ha)
Mg	47.0%	( 6 kg/ha)
Mn	69.6%	(15 kg/ha)
Cu	88.5%	( 3 kg/ha)
Zn	19.4%	( 5 kg/ha)

It means that, for example: the plants receiving Black Urea(according to the dry mass) outperformed the plants receiving urea by 25.1% N or the plants took up 65 kg/ha more N. The same applies to other elements.

On biomass, the plants produce 2.62 ton/ha for each N received as topdressing with Black Urea and 2.17 for urea. This is an increase of 20.47%.

Nico also take a Brix reading which resulted in 5.5 for Black Urea and 2.0 for urea. It must be mentioned that the plants were stressed at that time by drought. Our intention is to see what the final outcome will be at harvesting and we will give you the final results.

Hope this info will be of help.

Regards

Roelie Steyn  
Agric. Consultant

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