

# Sufficient management critical for higher soybean yield

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Why is South Africa's soybean yield not as high as, for example that of the USA, Canada, Brazil and Argentina?

"South Africa's variable rainfall and climate is one of the disadvantages, but there are a lot of things that producers are also doing wrong. You can make a profit out of soybeans, but not without sufficient management inputs."

This is according to Stephanie Roberts (research agronomist: Omnia Fertilizer) who spoke at the soybean information day that was held by John Deere in partnership with the Protein Research Foundation (PRF) as well as seed, crop protection and fertiliser companies on 27 and 28 August 2013 in Delmas.

Roberts pointed out that the so-called free nitrogen that is supplied by the N-fixing bacteria, in fact comes at a heavy cost to the plant in the form of additional sugars and nutrients demanded by the bacteria. "Although reasonable yields can be achieved without additional nitrogen fertiliser, soybeans have a high requirement for phosphorus and potassium. These must be replaced according to crop removal figures; otherwise the following maize crop will suffer."

Roberts also highlighted the following practices for improving soybean yields:

- Cultivars must be adapted to both the latitude and altitude of your farm. Production areas at the same latitude elsewhere in the world are at lower altitudes and far warmer than our Highveld region.
- Discover what works best on your farm. Try different planting dates and cultivar types to spread the risk of drought during flowering and pod fill.
- Good seedbed preparation and annual inoculation with N-fixing bacteria are important.
- Soybeans are not competitive growers and weeds must be controlled early and properly to prevent yield losses.

## Quality of soybean seed

Good quality seed is the basis of healthy crop production practices. "Generally good quality seed is 99,9% genetically the right variety with high germination and vigour and is free of any damage and diseases," Jeremy Munton-Jackson (supply manager: Pioneer) said.

The handling and storage of soybean seed is very important. "If you don't handle soybeans carefully, it loses its germination and vigour. It is critical

that the harvesting moisture is correct (between 13% and 15%). If the harvesting moisture is below 12%, the seed splits and cracks. Also make sure that you use an appropriate combine, as this is where the majority of seed damage appears to occur. Once you have harvested the soybeans, you need to store it at a fairly dry moisture level," he explained.

"And remember," he said, "even seed that appears visibly good can give you a very poor germination percentage. This needs to be tested beforehand, which is why certified seed is recommended."

## Input from Canada and Brazil

Fabio Schavinski (market planner: John Deere, Brazil) shared some experiences on soybean production in Brazil.

When it comes to the production of soybeans, Brazil is second in the world (86 million tons) and the country is also the biggest exporter thereof. "The production of soybeans in Brazil has grown 328% since 1990. Nowadays 50% is processed inside the country and 50% is exported to China," Schavinski said.

The total soybean production area in Brazil is produced under the no-till system which was first started in 1972, but only successfully took off in the early 90's after years of trials to perfect the system. Many producers started and gave up several times, but today over 25 million hectares are under no-till. "What producers have learned over the past few years is that crop rotation is of utmost importance when making use of no-till."

Patrick Lynch (certified crop advisor from Canada) gave some useful information to producers on soybean production:

- The hardest part of growing soybeans is the establishment thereof. The soil pH must be above 5,5 - 6 and seeds must be coated with two inoculants in the first year.
- In Ontario, Canada the biggest recent soybean yield increase could be attributed to the earlier planting of soybeans. Plant early and quickly.
- Research showed that making use of narrower rows will increase your yield. Row spacing has come down over the years from 91 cm to 19 cm, with the majority of producers currently using row spacing between 38 cm and 50 cm.
- The adequate population in 50 cm rows is between 400 000/ha and 500 000/ha depending on the type of soil. Unlike maize, growers successfully replant soybeans if the population is less than 300 000 plants/ha.
- The following are soybean planting myths: Nitrogen makes soybeans lazy and soybeans do not need fertiliser. ■



Jeremy Munton-Jackson, Stephanie Roberts, Fabio Schavinski and Patrick Lynch were some of the presenters at the soya farmers' information day that brought producers vital information on the complete soybean value chain.