

Can South Africa break through the average soya bean yield barrier of 2t/ha?

During the 2014/15 soya production season the Crop Estimates Committee (CEC) indicated that South Africa produced an average soya yield of 1,56t/ha on 687 000ha, thereby breaking the one-million-ton barrier for soya for the first time.

Unfortunately, the soya crop in 2015/16 season was dramatically reduced due to the devastating drought. In the past season, an average yield of 1,45t/ha was achieved with a total yield of 728 650 tons produced on 502 800ha.

How do we compare?

According to the United States Department of Agriculture (USDA), 119 million hectares of soya were produced globally with an average yield of 2,6t/ha. When compared to the major soya-producing countries such as Argentina, Brazil and the United States (US), South Africa's yield difference is more than 1t/ha lower. (Figure 1)

Environmental risks are obviously the greatest influencer on yield reduction. The 2015/16 drought, probably the worst experienced in the last century, is a good example. Many other risks including weeds, pests and diseases, planting time and cultivation methods can fortunately be managed.

Can we achieve higher yields?

Yes, this objective is possible. Research-based companies such as Bayer invest US\$1 of every US\$10 earned into creating value in farming. In the case of soya, two key focus areas can largely contribute to yield.

Improving genetics: Fortunately, successful cultivars from countries such

as Brazil and Argentina can improve the yield potential in South Africa. The search for improved cultivars does, however, take time. Furthermore, seed companies have been hesitant to invest in high-performing cultivars due to the practice of saving seed at farm level.

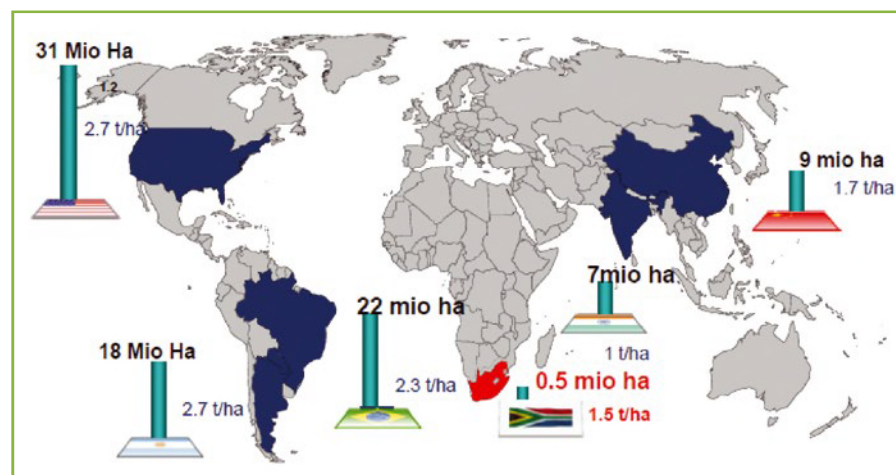
Fortunately, the introduction of a joint initiative to establish an end-point royalty (EPR) scheme is under discussion. This scheme will encourage the introduction of innovative genetic material, which will certainly create value for the soya bean farmer through improved yields as well as pest and disease tolerance.

Crop protection: Good progress is being made in creating micro-molecules for the control of yield-reducing problems, thereby targeting key issues in soya production. This includes nematodes, soya bean rust, *Sclerotinia* and stand reduction problems which contribute to damping off diseases and soil insects. It should be emphasised that the process of developing a new product takes around 10 years and starts with an idea or a new molecule.

This involves the maturation from a molecule, progressing through a rigid evaluation system which includes assessments in respect of environmental impact, crop safety, and of course the impact on the target indication. A part of this process also includes developing a durable and stable formulation to ensure easier and more effective application.

A typical project to develop a market-ready product will cost around €200 million, with only one in 100 000 substances eventually reaching the market. The process of developing a new

Figure 1: Main soya bean production regions and average yields. (Source USDA)



compound is summarised in *Figure 2*.

In South Africa, three or more years are spent on the evaluation of such a product under local conditions to ensure that these products are efficient in our environment. This includes the registration under *Act 36* of 1947. This means the lead time is often very long and new pest and disease issues need to be identified well in advance.



The future of soya bean crop protection will rely on the integration of traditional

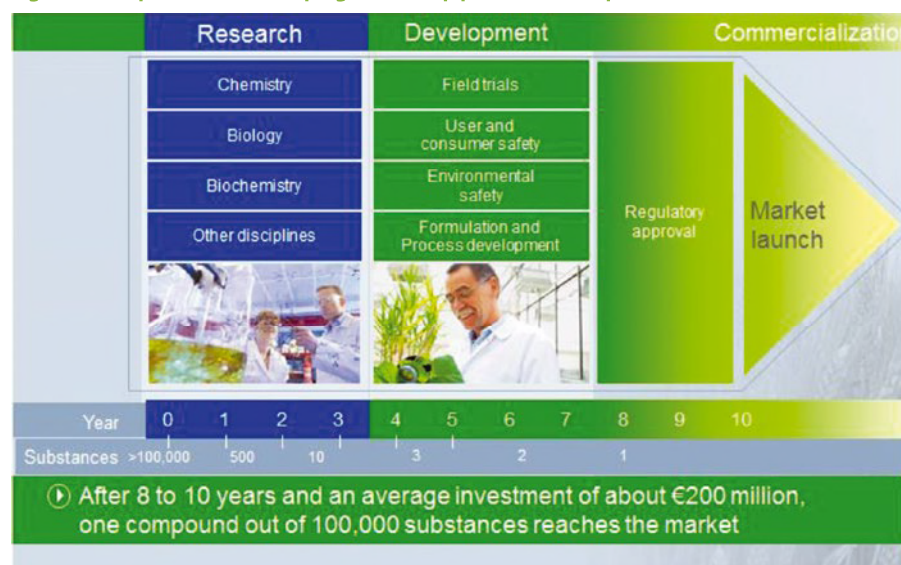
chemistry with biological compounds, which can be used effectively to reduce the impact of yield losses due to complex challenges such as nematodes and *Sclerotinia* rot.

Partnerships are key

In order to remain globally competitive, South African farmers need to embrace the latest innovations in crop protection. Unfortunately, the timeline to develop these indications are lengthy, and partnerships between research-based companies such as Bayer and growers will be even more crucial to ensure that the correct priorities are identified in ensuring that the true solutions are recognised and developed to optimise soya bean yields in this country.

According to the Bureau for Food and Agricultural Policy (BFAP), indications are that South Africa will be able to grow more than one million hectares of soya beans by 2021. The potential, therefore, does exist to achieve a national average of above 2t/ha, effectively breaking the two-million-ton barrier for soya to address our growing demand for protein. 🌱

Figure 2. The process of developing a new crop protection compound.



Liquid-Lime

Tired of high lime cost?

Our Liquid-Lime is the answer!

Save now on transport, application, diesel and labor cost! This Liquid-Lime is the first and only one of its kind, in pure CaCO₃ form, available in Africa!

Breaking boundaries with nature...

Visit our website for more information

Telephone: +27 (0)21 872 0037
 Fax: +27 (0)86 299 4198
 E-mail: info@ecogreenagri.com
www.ecogreenagri.com

Crop applied with Liquid-Lime