Fresh from winning the KZN Super Soya Competition, a farming partnership in northern KZN and southern Mpumalanga says that achieving top soya bean yield and quality takes the right input at the right time – even under rainfed conditions – and effective management. Lloyd Phillips reports.

**UNIQUE PARTNERSHIP**

**GREAT SOYA**

- Sokotshane grows no-till maize and soya beans in KZN and Mpumalanga.
- Leasing and profit-sharing gave the partners the land they needed to expand.
- Their large-scale operation runs on a single management system across the board.

**The Sokotshane partners' best & worst of farming**

The partners agree that the best innovations for their soya bean business were using Round-Up Ready varieties and implementing no-till production. Round-Up Ready soya beans simplify weed control, and let the partners correct weed-management mistakes even after planting. No-till requires much less capital than conventional tillage, lowers fuel and equipment maintenance costs, improves soil-moisture retention and management, and improves soil conservation.

Their greatest farming regret has been not realising sooner that there is plenty of land available to lease or profit-share to expand their cropping enterprise. Leasing and profit-sharing agreements benefit their enterprise, as well as the new landowners without the money, skills or equipment to farm their own land. The agreements are for a minimum of three years – long enough to improve soil health so crops can benefit.

**THE FARMING ENTERPRISE OF**

Carlsbad Pty (Ltd), near Vryheid in KZN, has won the province's 2009 Super Soya Competition in the Highest Yield under Dryland Conditions category. Carlsbad, which falls under Sokotshane Forestry and Construction, also came second in the Highest Gross Margin under Dryland Conditions category for the northern region. Its owners attribute this success to their management programme.

**Expanding on shared land**

Sokotshane is a partnership between farmers Koos Potgieter and Christo Clack of Vryheid, traditional leader Nkosi Douglas Zondo of KZN’s Swart Mfolozi community, and Jacob Durr of Davel in Mpumalanga, each with 25%.

Sokotshane grows no-till maize and soya beans and has a 50% share in a soya bean-processing business near Normandien in KZN. It also runs a 600-head commercial beef cattle herd and owns over 300ha of wattle, pine and gum plantations, as well as an agricultural contracting business.

'We realised we wouldn’t grow without extra land.'

"We realised we wouldn't grow if we didn't find extra land to plant maize and soya beans, so we started leasing land or entering into 50/50 profit-sharing agreements with other landowners in KZN and Mpumalanga," explains Koos.

"Some are commercial farmers, while others are land-reform beneficiaries without the financial resources, skills or equipment..."
to properly farm their land. Altogether we now crop about 6 500ha, of which the four of us own about 20% – 2 500ha in Dannhauser, Utrecht, Vryheid and Dundee in KZN, and 4 000ha in Ermelo, Amersfoort, Bethal and Chrisliesmeer in Mpumalanga."

Margins have been poor due to a lower maize price and higher input costs in the 2008/09 and current summer growing seasons. The partners therefore decided to grow only soya beans instead of their typical 50/50 maize soya bean rotation. Judging by the good profit from soya beans following the 2008/09 summer, this appears to have been wise, and the partners have another whopping soya bean crop in the ground this season.

The winning management system
The soils across Sokotshane’s enterprises vary from light and sandy with 10% clay content to heavy clay. In KZN, most of soils have been under no-till for at least seven years and have a good organic matter content, while the Mpumalanga soils are in their first year of no-till.

The average annual rainfall in the KZN and Mpumalanga cropping areas ranges from 700mm to 1 000 mm. Summer temperatures in KZN can reach 40°C, while

CONTINUED ON NEXT PAGE
Sokotshane in the 2008/09 Super Soya Competition

The competition evaluated 57 soya bean lands across KZN. Sokotshane’s winning yield in the northern region on dryland conditions was 5.75t/ha on Hunton soil, using Parnar 522 RR. Sokotshane’s winning crop was planted with a 40cm row spacing at a harvested plant population of 429 125 plants per hectare on 24 October 2008. It was on 8 April 2009, 166 days later, that the dried soya bean grain had a protein content of 38.70%. Gross margin was R14 676.97/ha, the second-highest in this category.

RIGHT: Christo Clack in one of Sokotshane’s mature soya bean lands. Because of the low maize price and high input costs; all 6 500ha of the owned, leased and profit-shared cropping lands have been planted to soya beans, in both the 2008/09 and current summer seasons. This has paid off for the partners.

PHOTO: ARNOLD DUBE

← frost is common in winter. In Mpumalanga, summer temperatures don’t go much over 30°C, but winter temperatures can drop to -10°C. “Because of the scale of our operation we can’t manage lands individually,” explains Christo. “We use one management programme across the board. But Mpumalanga has lower weed pressure, so the KZN lands get an extra herbicide application per season.”

‘We use many cultivars adapted to our conditions.’

Getting seed in the soil
The partners plant from 15 October to 15 December to take advantage of the longer days, warmer soils and more constant rainfall, which all encourage germination and growth. Nkosi stresses that lands must receive at least 25mm rain during a week before the soil is moist enough for planting.

Because their soya beans are produced no-till, the partners strive to plant into a weed-free seedbed. This is achieved with a blanket pre-planting spray with a mixture of 2ℓ/ha glyphosate, 1.5ℓ/ha Velocity and 24g/ha Classic. Velocity enhances the effectiveness of glyphosate, while Classic is particularly effective against nutsedge in sandy soils. Koos comments that Classic enhances glyphosate’s effectiveness against robust broadleaf weeds such as stinkweed. Bladbuff is added to stabilise the dare, river and borehole water pH used to mix the chemicals.

“We plant only Round-Up Ready seed at a rate of about 75kg/ha for 250 000 to 450 000 plants per hectare,” explains Koos. “Around 25% of the seed is certified, with the rest held back from the previous crop. We use many cultivars, all adapted to our conditions, from different seed companies.”

Christo explains that each planter incorporates an applicator to lay down Soyfio seed inoculant to promote nitrogen-fixing ahead of the seed in the furrow at a rate of 300mℓ per 100kg seed. Molybdenum, an essential micro-element for soya beans, is mixed into the Soyfio.

“We don’t fertilise the soya bean crop directly, as we’ve found that it doesn’t react to directly applied fertiliser,” says Jacob. “Instead, we fertilise the maize crop and the subsequent soya bean crop benefits from it.”

“We conduct soil analyses annually and correct the soil according to recommendations from Cedara’s soil-testing laboratory. We haven’t planted

Tractor-drawn chemical sprayers are used on young soya bean crops with a minimum row spacing of 75cm, and play an important role in pre-planting and early post-planting weed management.
maize for two seasons, but the latest analyses show soil nutrient levels are still adequate for soya beans."

**Coulters versus ripper tines**
There's no significant difference in yield between different row spacings, but row spacing varies from 40cm to 90cm according to the crop variety and the availability of planters.

Nkosi explains that some planters have ripper tines while others have coulters. Coulters are used on lands with 30% or more residue cover, while ripper tines are used on any land with lower residue cover and surface compaction from cattle hooves. The no-till planters range from four-row with 90cm spacing to a 12m, 21-row air seeder.

Post-emergent herbicide is sprayed on all lands in December and again in January if heavy weed growth is evident. Applications have the same mixture as the pre-planting spray, but a pyrethroid insecticide is added at a rate of 70ml/ha to 120ml/ha to control cutworm, bulbworm and locusts.

December and January applications are applied by tractor-drawn 14m John Deere boom sprayers, or Montana self-propelled sprayers. In December, when the soya bean plants are still young, tractors can spray in lands with a minimum row spacing of 75cm. Self-propelled sprayers are used at a row spacing of less than 75cm in January, when weeds threaten to outgrow the crop.

"In March all the lands get another post-emergent herbicide to clear the weeds ahead of the mid-April to end of May harvesting period," explains Koos.

**'We're aiming to expand the mill's capacity to 60 000t.'**

"The fungicide Punch Xtra is added at around 600ml/ha as a precaution against fungal disease. It also boosts plant health, keeping them green so they can photosynthesise for longer into the growing season, improving yield."

**Harvesting and processing**
The crop is harvested with flexi-headers on axial flow combines. These headers harvest down to ground level and collect almost all the soya bean grain. In contrast, standard headers can't effectively follow land contours, resulting in a loss of up to 20%. Axial flow combines also separate unwanted stalk material from the grain.

Lands are only harvested when the grain-moisture content is 16% or less. Harvesting is an 18-hour-a-day, seven-day-a-week operation, and the grain is stored in on-farm silo bags. In June and July it's dried in the sun or in grain dryers and dispatched to market. Sokotshane markets about half of the soya bean grain on SAFEX. The balance is processed at Kunjaneni Protein Products in Normandien, in which the partners have shares.

One-third of the soya bean grain the partners process at Kunjaneni is sold as full-fat soya, and the rest is processed to oil and oil cake. Kunjaneni's products are marketed to both human food and animal feed manufacturers in KZN, Mpumalanga, Gauteng and Swaziland.

**High output**
Jacob says that, at a conservative average of 21t/ha, the partners' 6 500ha cropping enterprise averages 13 000t of soya bean grain a year. Part of the expected crop is currently hedged on SAFEX at R2 700/t, giving a break-even yield of 11t/ha. The portion that goes through Kunjaneni increases their gross margin by 18%.

"The mill's total processing capacity is about 15 000t/year, so it's still quite small," says Nkosi. "But we're aiming to expand it to about 60 000t by the end of next year, so we can send as much of our soya bean grain to the mill as it can take."

* Contact Sokotshane Forestry and Construction on 083 281 2973 or e-mail salome@sokotshane.co.za | bw

farmer's weekly | 22 January 2010 | 49