Choosing the right NO-TILL IMPLEMENTS

Although conservation farming is still in its infancy, it is gaining ground against traditional cultivation methods, especially in respect of grain. When a producer, however, wishes to produce no-till grains or other crops, the choice of the right planter and its correct use is of utmost importance.

Wynn Dedwith of Valtrac Implements and a grain farmer from Parys, says soil compaction should first be lifted before commencing with conservation farming. It does not matter whether it is done mechanically or with strong plant roots, although it is worth noting that the latter takes longer. With a ripper one should leave as many plant rests as possible on the fields to form a blanket.

The fields should also be prepared chemically to correct the soil’s pH balance. Lime cannot be worked into the soil at a later stage. If the pH balance is correct, lime or gypsum can be spread on the fields and will gradually penetrate the soil.

Making the right choice
Dewald Barnard, manager of Rovic Leers in Pietermaritzburg, sheds some light on the properties of the right no-till planter for pastures. To prevent wastage of expensive inputs such as seed and diesel, it is vitally important that the right planter is purchased.

It is especially important that the planter units of a no-till planter are suitable to the conditions. The planter unit should be able to manoeuvre through the plant residues without becoming clogged. The weight of the planter also plays an important role, as it contributes to the planter unit’s pressure on the soil.

One should firstly determine the size of seed that the planter can handle. Preferably use a planter that can plant different sized seeds. This makes it versatile for use in various applications such as planting soya beans in summer, pastures in autumn and wheat in winter. Ensure that the planter has separate seed boxes for fine seed to prevent it from falling through during planting.

“Make sure the planter is durable enough for all applications under your farming conditions. It also makes sense to pay attention to the planter’s number of moving parts and ease of maintenance,” Dewald warns.

According to Wynn, the planter should place the right amount of seed and fertiliser correctly into the soil. “The seed must be placed in firm, moist soil and the soil on top of the seed should not be compacted. The seed must be ‘pinched’ from the sides so that it makes proper contact with the soil and at the same time
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The gauge wheels should be adjustable in order to place the seed in the right spot. The deeper the seed, the further apart the wheels and the higher the pressure should be. The pressure of the gauge wheels should therefore also be adjustable," Wynn says.

Soil surface
Therefore it is necessary that the gauge wheels, which control the seed unit depth, must be as close as possible to where the seed tube penetrates the soil. It is also crucial that the gauge wheels move independently in case one of the wheels runs over a rock or clod, so that it does not have a major effect on the planting depth.

"The planter should cause minimal disturbance to the soil surface to prevent furrows from forming. Furrows cause soil surface compaction through heavy rains, thus preventing seedlings from sprouting. It can also result in water flowing through the furrows, causing soil erosion, especially on sloped fields. Crop residues should also not be covered by the planting action, because they can bend like a hairpin, again causing a poor plant stand.

"The planter should space the seed correctly for an even plant stand. Vacuum planters are less sensitive to seed size than plate planters. The latter are very effective if the seeds have been properly sieved. Plate planters are also especially effective when planting soya beans, resulting in great savings," Wynn says.

Correct planting speed
According to Wynn, the planting speed is also important. If the speed is too high, the planting depth and evenness will differ. This is due to the seed ‘bouncing’ when it hits the soil at a high speed. The soil is also displaced – just like water by a ship’s bow. The ideal planting speed is 7km/h or slower.

Also ensure that fertiliser placement can be adjusted independently from the seed unit in respect of depth and spacing. A depth control wheel on the fertiliser unit is a good option, because fertiliser can be placed in the correct space in relation to the seed. Rippers are preferred where some compaction takes place due to farmers grazing their fields. Problems arise when farmers attempt to break underground compaction with a fertiliser applicator.

Wynn says a plant’s roots cannot penetrate from soft to hard soil. Roots do not drill through soil, but press through it by lengthening of the root. An even soil profile that is free of soft and hard soil layers, is therefore important.

Coulter size
The cutting coulter at the front of the planter is also important. It should be big enough to cut through crop residues and should not simply press it into the soil.

Quality planters are distinguished by their accuracy and ease of calibration. Planters that can be calibrated by making a few adjustments produce desired results.

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For more information, contact
Wynn Dedwith on 082 554 9202 or wynn@valtrac.co.za, and Dewald Barnard on 082 320 9228 or dewaldb@rovicleers.