

## Deep ripping

The purpose of deep ripping is to create a continuous system of soil pores from the surface to the lower depths to allow water infiltration, gas exchange, and drainage. Ripping will also reduce soil strength and facilitate root extension. To be successful the soil should crumble and the majority of soil particles in the ripped subsoil should be less than 20mm in size. This can only be achieved if the soil conditions are right at the time of ripping, and the operation is carried out in the correct way:

- The water content of the clay at ripping is critical and should be drier than field capacity but above the wilting point water content. Usually these conditions will be found in late spring or late autumn.
- To gauge the correct moisture content, mould some clay in your hand till you form a ball—then break it open and take a pinch of soil from the centre and then roll this into a thread. If you can't roll a thread, the soil is too dry, if it crumbles before it reaches 3mm in diameter it is ideal, but if it rolls thinner than 3mm it is too wet.
- The soil should break down to a friable mass and crumble up—not just smear or deform.
- The ripping rate must be low—less than 5km/h.
- Avoid tractor wheel or track slip as this will damage the surface soil.
- The job may require several passes at gradually increasing depth to achieve the desired result. It is essential that the ripping process brings the minimum amount of subsoil to the surface because this will reduce the free draining nature of the topsoil.

With a clay subsoil use a ripper with a rake angle 20 degrees from horizontal and wings attached to the tine having a sweep angle of 90 degrees and a width of 0.7 of the working depth. During ripping, check on the effectiveness of the operation by digging a trench behind the ripper and look at the soil profile to see if:

- there is enough lateral (horizontal) fracturing and loosening,
- there is no compaction,
- and the clods are less than 20mm diameter.

After ripping be careful to avoid any re-compaction by keeping all vehicles off the rip lines, including the tractor. Don't track roll to level the ground, instead drag a heavy bar over the rip line to smooth it off.

When working use tined implements (at up to 30cm deep) rather than disc ploughs or rotary hoes.

Notes prepared by Phil Barnett - ProAg



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