

Compaction Alleviation

Aerating, Sward-lifting and Subsoiling fields have the following water quality related benefits:

- Reduce/eliminate surface compaction post grazing/harvest.
- Increase infiltration of rainwater by improving soil structure.
- Slow the movement of water over the surface of the soil.
- Reduce run-off and erosion on a wider scale.

Other benefits include:

- Allow air to enter the soil, increasing biological activity and mineralising nutrients for productivity.
- Increase rooting depth, giving plants access to more water and nutrients during the growing season.
- Remediate and prepare poached areas for reseedling.



Remediating Soil Compaction

	Guidance
Where	<ul style="list-style-type: none"> • Always check field conditions and dig a hole to check if operation is required and where • Applications on pasture, grass silage and post-harvest where there is a risk of erosion, run-off and heavy machine transportation areas – tramlines and gateways etc. • Aeration and Sward-lifting are more suitable for fields which have surface compaction and poaching • Across slopes to intercept run-off
What	<ul style="list-style-type: none"> • Use machinery which is suitable for the horsepower of the tractor • Seek advisor/contractor advice for best machine options
How	<ul style="list-style-type: none"> • Assess the depth of the compaction by digging a soil pit and noting the compacted layers • Adjust the angle of tines depending on the severity of compaction or poaching. A more aggressive angle for areas that have been badly poached and a less aggressive angle for simple aeration • Weight may need to be added to the Aerator depending on soil type and compaction severity • Subsoil in dry conditions; set tines to just below the level of compaction, not too wide with tines no more than 2½ times working depth apart at the surface • See table below for typical working depth; ensure your machine is set to the correct depth
When	<ul style="list-style-type: none"> • Aerate in spring or late summer/early autumn when the soil is dry and friable to avoid smearing



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Type	Typical working depth (cm)
Aerators i.e. spikers or slitters	10-20 cm
<u>Sward lifters i.e. topsoilers</u>	20-35 cm
Subsoilers	35-50 cm

Management for Water Quality

- Prioritise fields with a high risk of run-off and/or erosion and/or areas which experience a high degree of livestock traffic.
- Consider in rotation to spread future workload and cost.
- Ensure correct depth is achieved to remove the deepest level of compaction.
- Dig soil pits and monitor arable fields to prioritise future sub-soiling actions.

Strategic Aeration and your farm business

Aeration and Subsoiling can not only increase the infiltration rate of rainfall but also increase the rooting depth of grass swards, allowing them to access more nutrients and minerals making swards more palatable and nutrient dense.

By opening up the top layers of soil, air is introduced allowing greater mineralisation of nitrogen for the grass crop to take advantage of. There is evidence to suggest that aerating a sward can mineralise up to 50kg/N per Ha, reducing inputs and increasing your bottom line.

Both these advantages may increase farm yield and gross margins.

Consents and Licences

N/A