

Appendix 17

Soil Sampling Procedures

1. The area to be sampled should be divided into obviously different soil and site types and each type sampled as a separate unit. A 6 " OS map must show the total area under proposal, show the pattern of sampling and make clear what sections are represented by what samples.
2. For each unit, if there are clearly different horizons then sample each horizon separately. Otherwise take separate samples from the layers 0-20 cm (surface) and 20 – 40 cm (sub-surface). In the absence of clearly defined soil horizons it is possible to manipulate the sampling procedure and analysis results by taking the second sample as near as possible to the 20 cm point. This difficulty can be overcome by taking an additional sample from the zone below 40 cm. This will involve a third sample for that particular site but will also remove any doubts about the result of the soil analysis.
3. From each horizon or layer collect 12 – 15 or more samples. Each of these is treated as a subsample.
4. Collect the subsamples by travelling across the area to be sampled using a zigzag or "S" shaped route. All sampling locations should be identified on 6" OS map, if available.
5. Combine the 12 to 15+ sub – samples from each horizon or layer in a large clean bag and mix thoroughly. Make sure to keep the horizon or layer sample separate and clearly labelled.
6. Take a portion of the mixed sub-samples, at least 100 g (4ozs) and send to a laboratory with identifying and other details.
7. Record all aspects of sampling procedure and site details. The location of each sample unit and the location of where the sub-sample were taken should be recorded on a 6 " OS map.
8. The samples should be assessed in the laboratory for pH and free CaCO₃.
9. Record the depth of any apparent calcareous layer in the soil profile.
10. Sampling should be done by an approved forester. These foresters should have acquainted themselves fully with the recognised and accepted forestry soil sampling techniques as published by Forest Service.
11. The relevant Forest Service Inspector should receive a copy of the soil sampling form fully completed and the soil sampling map showing the sampling areas or units. Each sample must be related to a plot number and each zone of sampling clearly identified. S/he should also receive a copy of the laboratory soil analysis and comments including species recommendations, site suitability etc. The completed soil sampling form, species recommendations, together with the map and drainage report if applicable, must be signed by the soil scientist making the recommendation
12. The procedures as outlined above do not cover man made soils e.g. land fill or where there has been extensive reclamation, levelling, drainage or disturbance of some kind. Where there has been interference by man the soil sampler should discuss the soil sampling procedure with the relevant soil analysis laboratory before any samples are taken.

Explanatory Notes

If the crop fails or does not perform satisfactorily and this performance is shown to be related to edaphic conditions then the soil sampling procedures and analysis will be questioned. The responsibility rests with the land owner, the site developer and the soil sample laboratory. Because of the possibility of crop failure it is recommended that an independent third party should take the soil samples.

The Forest Service at this stage will conduct its own investigation including soil sampling and independent analysis. If these analysis results are at variance with the first lot the land owner will be advised of this fact. Forest Service will issue a written warning to the soil sampler at this stage. If in the event of a repeat happening the soil sampler will be told that s/he will no longer be considered a suitable and fit person to submit samples and reports.

Following on from here, if in the opinion of the Forest Service the land does not have the potential to produce a crop of minimum YC 14 Sitka spruce grant money and premiums will have to be refunded to the Department. Furthermore the land owner will be very likely to seek adequate compensation for his/her loss of income while the land was out of agricultural production.

Two forest soil laboratories offer a soil analysis service. They are:

Coillte Teo
Site Studies Section
Coillte Research Laboratory
Newtownmountkennedy
Co Wicklow
Tel: 01-2819493

U.C.D
Dept of Environmental Resource Management
University College
Belfield
Dublin 4
Tel: 01-7067716

SOIL SAMPLING FORM

PERSONAL DETAILS

Name & Address		
Telephone No.	Fax. No.	Mobile No.
Your Reference		
Sampled by		Date Sampled
Townland		OS Grid Ref.

SITE DETAILS

Is it currently planted?	Year planted?	What species?
Area: (Ha)	(Acre)	Dominant ground vegetation?
Aspect: (facing N,S,E,W, or flat)		Elevation: (1) ft or (2) m

PREVIOUS LAND USE

Farming Practices before		
Previous Crop		
Fertilised/limed Yes/No	Year	Type/Rate
Relcaimed Yes/No	Year	Type

SOIL SAMPLING DEPTHS

Topsoil depth: (cm)	SUBSOIL DEPTH
Situation 1. Mineral (depth to Calcareous material (cm)) 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6 ___ 7 ___ 8 ___ 9 ___ 10 ___ 11 ___ 12 ___ 13 ___ 14 ___ 15 ___ 16 ___.	
Situation 2. Peat over Calcareous material Depth to Calcareous material (cm) 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6 ___ 7 ___ 8 ___ 9 ___ 10 ___ 11 ___ 12 ___ 13 ___ 14 ___ 15 ___ 16 ___.	

ANY OTHER COMMENTS

SITE DETAILS: (TICK AS APPROPRIATE)

TOPOGRAPHY	SOIL TYPE	CALCAEROUS MATERIAL	EXPOSURE
Flat <input type="checkbox"/>	Brown Earth <input type="checkbox"/>	Shell Marl <input type="checkbox"/>	Very exposed <input type="checkbox"/>
Concave <input type="checkbox"/>	Brown Podsol <input type="checkbox"/>	Marl (shells) <input type="checkbox"/>	Mod. exposed <input type="checkbox"/>
Convex <input type="checkbox"/>	Podsol <input type="checkbox"/>	Till <input type="checkbox"/>	Mod. sheltered <input type="checkbox"/>
Bottom-slope <input type="checkbox"/>	Podsol+pan <input type="checkbox"/>	Coarse (+boulders) <input type="checkbox"/>	Sheltered <input type="checkbox"/>
Mid-slope <input type="checkbox"/>	Lithosol <input type="checkbox"/>	Fine (-boulders) <input type="checkbox"/>	
Top-slope <input type="checkbox"/>	Peaty Gley <input type="checkbox"/>	Esker <input type="checkbox"/>	
	Gley <input type="checkbox"/>		
	Blanket Bog <input type="checkbox"/>		
	Raised Bog <input type="checkbox"/>		
	Fen peat over calcareous <input type="checkbox"/>		

SITE FERTILITY*	SOIL DRAINAGE	SITE SUBJECT TO
Class A <input type="checkbox"/>	Present <input type="checkbox"/>	Potential <input type="checkbox"/>
Class B <input type="checkbox"/>	Poor <input type="checkbox"/>	Flooding <input type="checkbox"/>
Class C <input type="checkbox"/>	Mod. <input type="checkbox"/>	Frost <input type="checkbox"/>
Class X <input type="checkbox"/>	Good <input type="checkbox"/>	
	Out fall? Yes <input type="checkbox"/>	No <input type="checkbox"/>

*EXPLANATION OF SITE FERTILITY

Class A: *Fields and ornamental ground*. These are areas, which have been in intensive agricultural use up to relatively recent times, so that they carry characteristic agricultural vegetation (pasture grasses and herbaceous plants, often with high proportion of rushes. They are among the most fertile site types.

Class B: *Furze or whin*. These are sites that were once enclosed by banks, walls or ditches. This indicates that at one time they were considered sufficiently fertile to justify bringing them under agricultural use, and were probably cultivated. The class would include all long-abandoned agricultural land (indicated by the presence of Ulex or bracken). It might also be extended, on the basis of local knowledge, and experience, to include unenclosed areas on mineral soils derived from parent materials of shale, mica-schist or granitic origin.

Class C: *Rough pasture, with or without cropping rock*. These are areas of unenclosed ground, which have never been cultivated or brought under any form of intensive agricultural use. Sites to include are those on unenclosed land, usually upland or bogland, carrying typical unimproved heath land or peat land vegetation.

Class X: *Woodland*. Sites to be included are coniferous, broadleaved and mixed woodland.

LABORATORY TESTS: TICK THE TEST THAT YOU REQUIRE ON YOUR SOIL SAMPLE

1. pH, e.g. for the purpose of determining site suitability for forestry	<input type="checkbox"/>
2. pH & Calcium, e.g. for the purpose of determining site suitability & species selection	<input type="checkbox"/>
3. pH, Phosphorous, Potassium, Calcium & Magnesium, e.g. for the purpose of determining growth problems and preparing fertiliser prescriptions	<input type="checkbox"/>

*Please note that a "topsoil" and a "subsoil" constitutes two samples.

SEND SAMPLES TO: Site Studies Laboratory,
Newtownmountkennedy,
Co. Wicklow.
Tel: 01-2819493, Fax: 01-2810465

Or

Dept. of Environmental Resource Management,
UCD, Belfield, Dublin 2,
Tel 01-706 7721