



## ABF Group at a glance

### **GROCERY SUGAR AGRICULTURE INGREDIENTS RETAIL Grocery comprises** A leading multinational Primark is a major retail AB Agri occupies a Yeast and bakery consumer-facing in the expanding unique position across ingredients production group employing 73,000 businesses that international markets for the agri-food supply supporting and enabling people. It operates over manufacture and market sugar and sugar-derived chain. Its focus is to add the world's bakers, both 345 stores in the UK, a variety of well-known co-products, with value and drive profit for large and small, across Ireland, Spain, Portugal, brands both nationally operations in the UK, partners all along that craft/artisan and Germany, the and internationally. Spain, southern Africa chain by improving the industrial as well as Netherlands, Belgium, Products include hot and China. sustainability of food high-value ingredients Austria, France, Italy and beverages, sugar and the US. It offers production. for food and non-food sweeteners, meat, vegetable oils, bread, customers quality, up-toapplications. baked goods and cereals the-minute fashion at and world foods. value for money prices.

## British Sugar at a glance

- Four advanced manufacturing plants processing sugar beet in the UK
  - Bury, Cantley, Newark and Wissington and head office in Peterborough
  - Over 3,000 growers
  - Lowest cost sugar processor in the EU
- A major contributor to UK economy, especially in East Midlands and East Anglia
  - In 2015 farmers received ~£320m in receipts from British Sugar
  - Total spend on goods and services was in excess of £600m
  - Paid more than £200m in corporation tax in past five years
  - Support a further 9,500 jobs in the UK economy

### More than simply sugar

- Power generation for a city the size of Peterborough
- Fuel ethanol, animal feed, topsoil, pharmaceuticals, betaine...

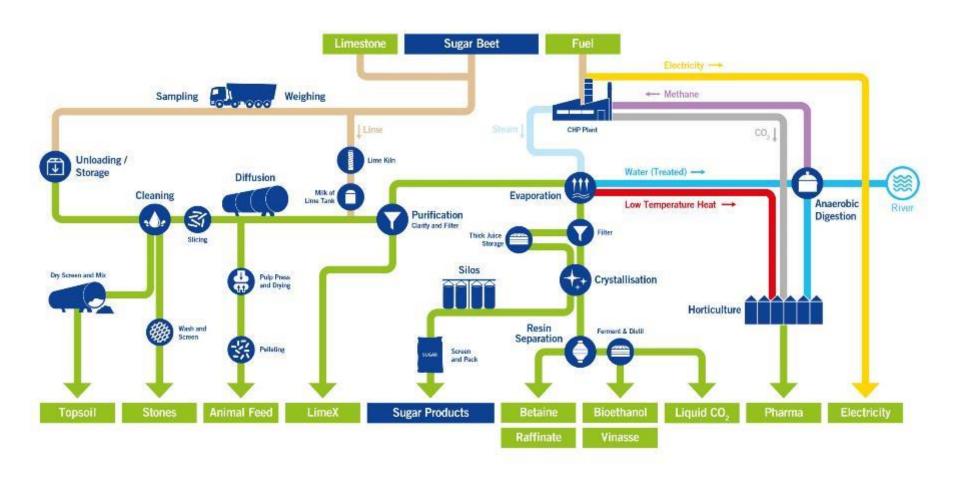
### A valuable part of UK agriculture

- Profitable, reliable part of arable rotation
- Aids soil health, pest and weed control
- Positive sustainability story





## Using 99% of the outputs from the sugar making process





## #BackBritishSugar

Creating a level playing field for the British beet sugar industry

 Buy homegrown British Sugar - look out for the Silver Spoon brand



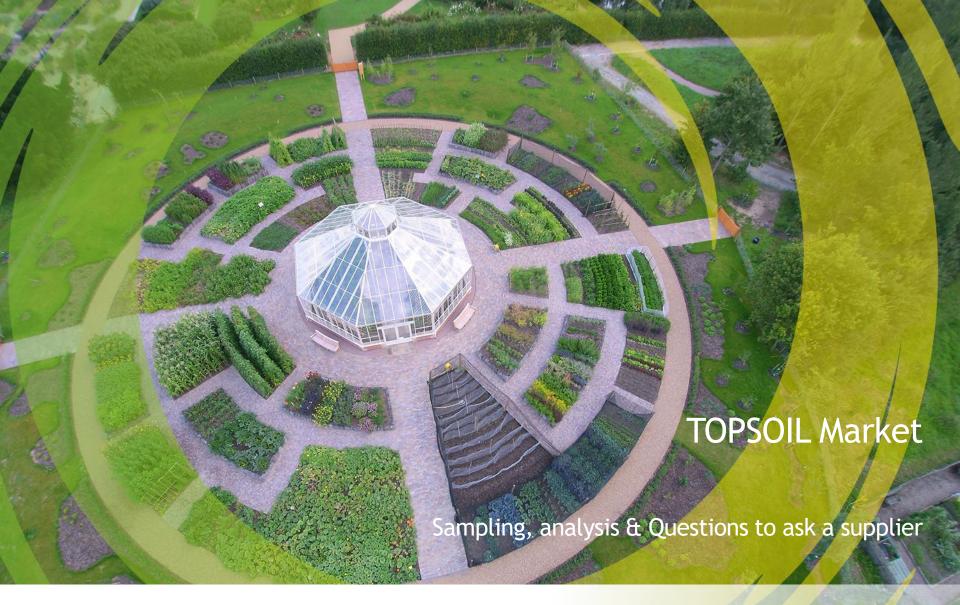




- Show your support for a great British industry on Twitter (@BritishSugar)
- or Instagram (@BackBritishSugar) using #BackBritishSugar









Andy Spetch

## Presentation

### **TOPSOIL Market**

Sampling & Analysis

Reports & Certificates

Questions to ask suppliers

Importing subsoil & topsoil



## The Market and Sources of Topsoil

Manufactured Soil: Mineral & Organic Blend







Skip Waste : DANGER

<del>DI ILISI IJUYUI</del>

Natural Soil: Variable

# Sampling & Analysis: British Sugar TOPSOIL analyse for 70 different parameters

- Samples are taken in accordance, at least, to BS3882:2015 every 5,000m3 (8KT)
- 25 sub samples are taken to ensure the bulk sample is representative
- We analyse our products over 30 times each year and hold historical data
- Laboratory analysis is undertaken at a UKAS and MCERT accredited laboratory
- Tim O'Hare Associates report includes
  - Declaration of compliance BS3882:2015 / BS8601:2013
  - Analytical schedule
  - Results of analysis
  - Conclusion
  - Recommendations
  - Certificate of Analysis



We ensure a representative sample is taken





## Analytical Schedule: Don't forget contamination testing

- PSA and stone content
  - pH and EC values
- Exchangeable sodium %
  - Major plant nutrients
- OM%
  - C:N ratio
- Heavy metals
  - Total cyanide and total (mono) phenols
  - Aromatic and aliphatic TPH (C5-C35 banding
- Speciated PAHs (US EPA 16 suite)
  - Benzene, toluene, ethylbenzene, xylene
- Asbestos screen



Potential Contaminants levels are measured against recognised industry standards



## **Analytical Schedule:**

Ensures are product contains no concentrations of chemical contaminants that would cause significant harm to human health and the environment

### ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- · detailed particle size analysis (% 5 sands, silt, clay)
- stone content:
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio:
- heavy metals (As, B, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn);
- · total cyanide and total (mono) phenols;
- · aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite);
- · benzene, toluene, ethylbenzene, xylene;
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below. The interpretation considers the use of the LANDSCAPE 20 TOPSOIL for general landscape purposes and its compliance/non-compliance with our general landscape specification.

### Report should also include:

- Results
- Feedback on Potential Contaminants
- Recommendation





We watermark all certificates to prevent fraud



## Declaration of compliance BS3882:2015

### Declaration of Compliance BS3882:2015

Soil source: British Sugar TOPSOIL

This declaration confirms that the topsoil represented by the attached Topsoil Analysis Report conforms to the requirements of the British Standard for Topsoil (BS3882:2015).

The sample was sampled and tested in accordance with the requirements of BS3882:2015

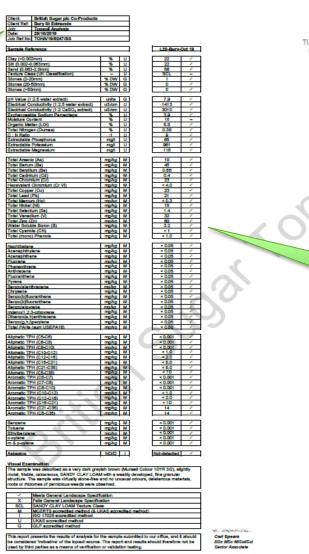
- Samples are taken for analysis every 8000 tonnes (5000 m3) of product
- Samples are taken from all TOPSOIL products ready for despatch
- All products are sampled after screening
- Analysis certificates are retained for a period of 5 years
- · Laboratory analysis is undertaken at a UKAS and MCERTS accredited laboratory
- All laboratory methods are in accordance with BS3882:2015
- · All British Sugar TOPSOIL products are produced to a Quality Management System approved by Lloyd's Register Quality Assurance to ISO 9001:2008 standard

British Sugar TOPSOIL, National TOPSOIL Manager Sugar Way, Peterborough, PE2 9AY



## Certificate of Analysis

If older than 6 months ask questions?





We analysis for 70 Parameters



Results of analysis should be read in conjunction with the report they were issued with

The contents of this certificate shall not be reproduced without the express written permission of Tim Office Associates LLP.



# Questions for suppliers Visiting is always recommended

- What is the source of your subsoil / topsoil is it BS8601:2013, BS3882:2015 compliant?
  - Greenfield / Brownfield / Skip / Manufactured ?
  - Do you use PAS100 compost?
  - Is there an auditable process?
  - Are quality ingredients being used?
- How is the topsoil stored?
- What tonnage is available?
  - Period of availability?
  - Is there enough for my project
- What is their sampling protocol?
  - Who does your sampling?
  - Can I have a copy of your analysis?
  - Date of last analysis?
  - Suite of analysis?
- Do you have testimonials?
- Affiliation to Trade Organisations? (BALI)







## **Importing TOPSOIL:**

We're becoming increasingly aware of soil being rejected at site due to poor quality

### Buying soil 'blind' is extremely risky.

- Insist on an up-to-date analysis
- Build a relationship with your supplier like you would a nursery

### **Details**

- Contact name and Company name
- Phone number, Email address & Site contact
- Product(s) and tonnage / number of bulk bags
- Delivery (with post code and vehicle type) or collection
- Date of delivery
- Site opening times
- Any special delivery instruction, loads per day

### **Site Access Considerations**

- Bulk deliveries can be made by articulated, 8 wheeler or grab lorries depending on access and availability.
- As a guide the amount of TOPSOIL carried by these lorries is:
  - Articulated lorries approx. 29t
  - 8 Wheeler lorries approx. 20t (17t)
  - Grab lorries approx. 15t









## Site storage / Tipping area:

## Segregated / On high ground / Accessible / Clean











## Remember that every project and planting scheme is unique

The aspect of the site. Is it North or South facing?

Is a subsoil needed?

Is the site drained?

What is the texture of the existing topsoil. Is it free draining or moisture retentive?

What is the nutrient content of the existing soil and the needs of your planting scheme?

What is the texture of the subsoil and does it need decompacting?

Check access to your site







## De-compacting: Ripper tine and Landscape Rake





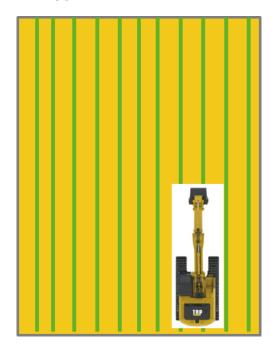




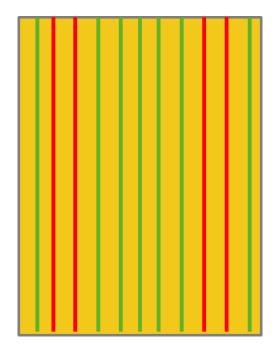


## De-compaction & Placement

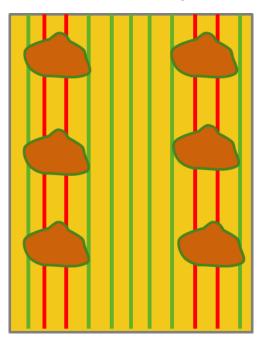
Ripping of subsoil 400mm



Designated traffic routes



Tipping of topsoil
Rip traffic route
Work away from yourself and back to the access gate











Andy Spetch

## Presentation

- Soil Profile
- Soil Structure
- Soil Texture
- Compaction
- Cation Exchange Capacity
- Soil pH
- Nutrients / Organic Matter / EC / PTE's





## What is Soil: A blend of sand, silt, clay & organic matter

Topsoil is composed of mineral particles, organic matter, water and air

Loam is composed of mineral particles, organic matter, water and air



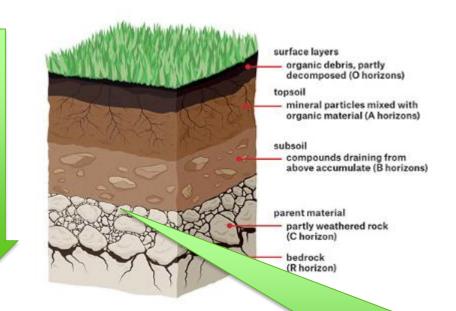
Muck away is not always topsoil





## A Soil Profile

### A Soil Profile should allow free movement of water, air and roots



Topsoil: Typically the top 30cm, darker and fertile

Subsoil: Directly under topsoil, lighter in colour, less fertility

Parent material / Bedrock: can be solid rock which breaks down with weathering

Dig a pit to understand your soil profile

## Topsoil will only function if it is in sync with its subsoil





## Soil Structure

### What is soil structure?

• Soil structure is the arrangement of soil particles (sand, silt, clay and organic matter) into granules, crumbs or blocks. It is the shape that the soil takes based on its physical, chemical and biological properties. Soil structure is often confused with soil texture, both of which affect the soil's drainage and aeration capabilities.

Well-structured soils are crumbly and friable and have plenty of pore space to allow water and air movement and healthy root development.

Poorly structured are cloddy soil, which will be difficult to work.

### Why is structure important?

- · To perform effectively as a growing medium soils need an open structure through the soil profile.
- A good soil structure is important to allow air and water into the soil which are vital for healthy plant growth. It will improve drainage and reduce soil erosion caused by excess surface run-off.

Without structure, soils will suffer from anaerobism, waterlogging and nutrient lock-up and, ultimately, plants will die!









## Don't forget the subsoil BS8601:2013 Subsoil shouldn't mean cheap!

- Only applies to IMPORTED Subsoil
  - Multipurpose Grade
  - Specific Purpose Grade (acid / alkaline / low fertility)
- It is not the 'be all end all'
- A good starting point
- Build 'project specific' soil specifications for each scheme
  - Consider the drainage?
  - Consider the topsoil?
  - Consider the planting scheme?
- Don't always think that compliance to BS8601:2013 means you will get a suitable subsoil delivered!

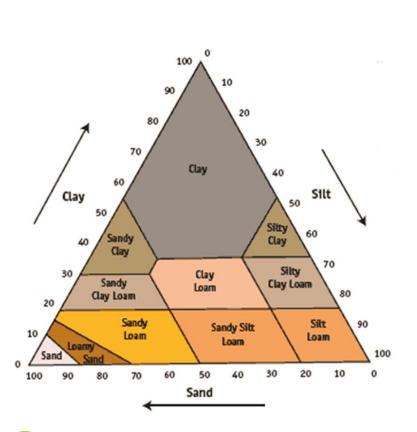




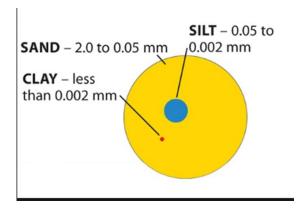
## Soil Texture

Soil Texture indicates the relative content of particles of various sizes, such as sand, silt, clay and organic matter in the soil.

Texture influences the ease with which soil can be worked, the amount of water and air it holds, and the rate at which water can enter and move through soil



Need soil particle size analysis



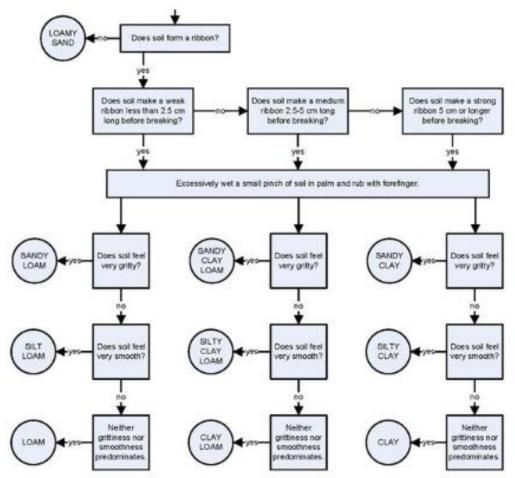




## Soil Texture: Spit & Rub

Soil Texture indicates the relative content of particles of various sizes, such as sand, silt and clay in the soil.

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## Soil Compaction

Soil Compaction is the most common cause for a loss of soil structure on construction sites, and it can occur in the topsoil and subsoil layers.

The result is a soil profile that is impregnable to plant roots, water and air.

Typical causes of soil compaction include:

- Excessive foot trampling and vehicle trafficking over soils;
- Storage of building materials on exposed topsoil or subsoil;
- Handling soils when they are wet and plastic;
- · Stockpiling soils inappropriately.

Signs of soil compaction include:

- · Surface water 'ponding' and/or waterlogging;
- · Soil resistance when pushed with a spade or probe;
- Black/grey, anaerobic topsoil with a sour odour;

### **Soil Decompaction**

Soil decompaction is therefore necessary on most construction sites to restore the landscape soils back to a suitable condition.

Topsoil is easier to restore than subsoil but the latter must not be ignored.

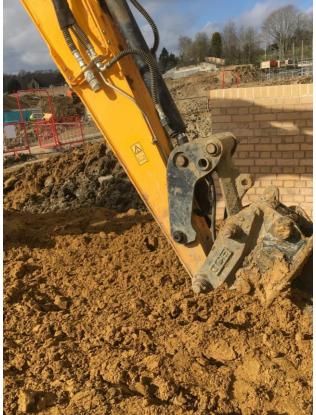
One method that is effective in smaller areas, such as back gardens, is the use of an excavator fitted with a 'ripper tine' attachment.

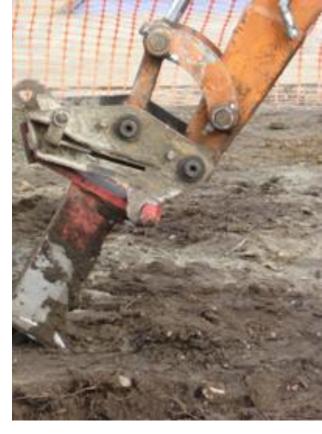
This involves ripping the soil profile to depths of between 30cm and 60cm to loosen and break up the compacted layer(s) before doing the final soil cultivations.











Decompaction Implements







## Top ten tips for soil sourcing and on-site management

### To give your landscape project the best chance of success:

- Assess the quality and suitability of the site soils (preferably before stripping the topsoil) by conducting a Soil Resource Survey (separate from a normal Ground Investigation);
- If imported soils are required, use only BS 3882:2015 compliant topsoil and BS 8601:2013 compliant subsoil from reputable suppliers who must provide a valid load-specific Declaration of Analysis (including contamination analysis);
- Refer to both the above Standards for advice on correct soil sampling, handling, storage, soil preparation and depths;
- Avoid handling topsoil in wet conditions;
- Create a dry, clean, segregated holding area for storing topsoil, and seal in or cover the heap;
- Minimize the amount of human and mechanical traffic from the area to be landscaped to avoid compaction;
- Set levels for topsoil application minimum depth 150mm, maximum depth 300mm;
- Avoid compacting newly laid topsoil;
- Slightly consolidate the new topsoil by lightly pressing with the back of a excavator bucket;
- Work off a board when planting or turfing.





## Useful guidance documents

Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009

- BS 3882:2015 Specification for topsoil
- BS 8601:2013 Specification for subsoil and requirements for use

The Essential Guide to Topsoil

Site Managers Guide

Go to our website www.bstopsoil.co.uk





## Soil Science

- Cation Exchange Capacity
- Soil pH
- Nutrients
- PTE's





## Cation exchange capacity (CEC) is a soil chemical property. It is the ability of the soil to hold or store cations.

Soil nutrients exist as positively charged (SAND) or negatively (CLAY) charged ions when dissolved.

Soils with high sand content have low holding capacity for cations compared to clayey and silty soils because they are +VE charged.

Clay and silt particles have negatively charged sites which enable them adsorb and hold on to cations.

When soil particles are negatively charged they attract and hold on to cations (positively charged ions) stopping them from being leached down the soil profile.

The cations held by the soil particles are called exchangeable cations

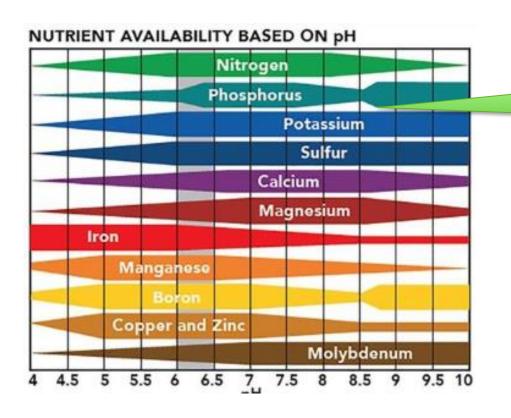
Negatively charged soil particles repel anions (negatively charged ions). The implication of this is that negatively charged nutrients such as nitrates, sulphate and chlorides are vulnerable to leaching down the soil profile.





## Soil pH

- Soil pH is an indication of the acidity or alkalinity of soil
- It is measured in pH units
- The pH scale goes from 0 to 14 with pH 7 as the neutral point.



Remember Clay is -Ve charged and many major nutrients (cations) are +ve charged





### **Nutrients**

### Nitrogen

Required for the growth of leaves and stems

Deficiency causes weak, stunted growth and yellowing of older leaves.

Excess nitrogen can also be detrimental causing such effects as disproportionate leaf growth at the expense of other parts of the plant (e.g. flowers)

### **Phosphorous**

Principle nutrient for root growth and development

Deficiencies may cause stunted root systems whilst the leaves on some plants may also exhibit a dull green or purple coloration

### **Potassium**

Essential for growth and water and nutrient transportation

Deficiency in plants include brown **scorching** and curling of **leaf tips** as well as **chlorosis** (**yellowing**) between **leaf veins**. **Purple spots** may also appear on the **leaf undersides**. Plant growth, root development, and seed and fruit development are usually reduced in potassium-deficient plants.

### Magnesium

A constituent of chlorophyll, the green pigment which enables plants to photosynthesise Deficiency may be noted by the interveinal yellowing of the plant's older leaves.









Andy Spetch

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We ensure a representative sample is taken



# We have 40KT of covered storage: Ensuring Quality "On time and in Full every time"











## Site Managers Guide & Aftercare Guide



### A Site Manager's Guide

- What is the history of the site? Has a soil survey been carried out? Has the existing site soil been analysed for con
  - Is the soil heavily compacted/waterlogged or contaminated with construction waste?
- is de-compaction/clean-up work needed?
- What imported soil is required Subsoil? Topsoil? How much?
- If the onsite soil is suitable for re-use: First remove any vegetation
  - Strip the topsoil and store
  - Strip the subsoil and store
  - is there a suitable area for storing and weatherproofing the onsite/imported soil?

### PREPARE the site:

- Only in dry conditions, de-compact heavily trafficked/waterlogged areas using a ripper tine attachment on an excavator to rip the soil to depths of between 30cm and 60cm to loosen and break up the compacted layers.
- Prepare a clean, segregated and fenced off area to store onsite/imported soil, preferably on higher ground to prevent water running into it. Sheet the stockpiles if the soil is to be stored for several weeks.

. Talk to your supplier - use the checklist below to make sure you order the right soil in the correct quantities. delivered without incident.

### PLACE your soil:

- Avoid handling soils in wet conditions and minimise all traffic (machinery and pedestrian) on the areas to be landscaped. Place your soil to the correct depth. lightly consolidating with the back of an excavator bucket between different soil levels
  - Subsoil: Tree nits = 500,700mm; Planting areas = 300mm
- Topsoil: Turf and grass areas 150mm-200mm; Planting areas 300mm max · Rake, then plant or turf, before cordoning off freshly landscaped areas.

### Make sure you ask your soil supplier the following questions before ordering:

- What is the source of your soil? Greenfield/Brownfield/Skip/Manufactured
- Do your products comply with the relevant British Standard for Subsoil and Topsoil
- How is it stored? Undercover/Outdoors
- Do you have enough for the duration of this project Who does your sampling and analysis?
- Can I have a copy of the Declaration of Analysis?
- Are you a member of a reputable industry organisation?

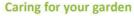
### INFORMATION YOUR SUPPLIER WILL NEED WHEN YOU PLACE AN ORDER

To ensure you order the right soil in the correct quantities, delivered without incident, have the following

- Type of project housebuilding, amenity/commercial landscaping, tree planting, turfing etc.
- Type of soil (subsoil/topsoil) and quantity required calculate the area to be covered and the depth of product required to enable your supplier to calculate the correct tonnage.
- Site access most suppliers will deliver their soil in loose loads by 20 tonne rigid vehicles or 29 tonne articulated trucks. It is crucial you give them the following information for an incident-free delivery:
- Width of access
- Width of approach road/driveway
- Any weight restrictions on the approach/site
- Any height restrictions on site/overhead services
- Site access times and any restrictions
- Any local knowledge regarding adjacent properties/schools/neighbours etc.
- Onsite contact name and mobile number
- Order information (e.g. PO number etc.)

### To order call 0870 240 2314

topsoil@britishsugar.com www.bstopsoil.co.uk All products are available in bulk, or in bulk bags (minimum order required)



ow successful your lawns and planting borders will be year after year is largely dependent on keeping the soil in your garden healthy. This means making sure that it contains enough air and nutrients and that water (rainfall and irrigation) can move freely



### Common issues with newly imported and placed soil

Compaction. This is where the spaces between the soil particles become compacted, resulting in a lack of air in the soil, slow drainage, potential waterlogging, and plant deaths.

Causes: - Heavy trafficking by site machinery, vehicles and people

- Heavy rainfall
- The over-application of surface mulch (such as bark, woodchip, slate etc.)

Remedy—Break up and shatter the compacted layer\* manually with a garden fork, or aerate with a spike or plug aerator. \*To find the depth of a compacted layer simply push a probe or garden fork into the soil/turf until resistance is encountered.





Manually aerating the soil with a garden fork



De-compacting soil under turf Natural settlement. It is common for soil to experience a degree of settlement after it has been

Causes: - The soil has been insufficiently consolidated or 'firmed down' after placing

- Where drainage has been installed, these areas can dry out more quickly, causing the soil to shrink and slump
- Heavy rainfall

Remedy—Break up and loosen the soil before firming it down, and apply topsoil or topdressing to level up slumped areas. To raise topsoil levels in planting beds, simply add more topsoil and wellrotted organic matter between the plants, as required.



Removing turf to raise



Raising soil level beneath turf with topsoil or topdressing



Top dressing a lawn after



SubSoil

Landscape 20

HortLoam

## To find out more about British Sugar TOPSOIL

To arrange a visit or for more information on TOPSOIL products call 0870 240 2314 or visit our web site **WWW.bstopsoil.co.uk** 

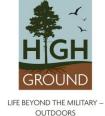














## British Sugar TOPSOIL Product Range Available in bulk loads or bulk bags



Landscape 20 is a fully-analysed and compliant to BS3882:2015, sandy loam, TOPSOIL. It is ideal for general landscaping projects such as seeding and turfing.



HortLoam is a BS3882:2015 compliant planting topsoil. With optimum reserves of organic matter and nutrients, HortLoam is ideal for planting rootball trees, shrub bed, retained planters and vegetable planting projects.



**Lawn dressing** is ideal for the construction and repair of lawns where a free draining but fertile rootzone is needed.



Free Draining subsoil: Suitable where a faster draining subsoil is needed i.e. lawns, sports pitches & tree pits



General Purpose subsoil: Compliant to BS8601:2013 as a multi purpose subsoil. Suitable for general landscaping purposes, trees, shrubs and amenity grasses