Query Sample Purpose

The purpose of this sample is to discuss the attributes related to soil horizon or layer texture, and how those attributes are related to one another. This set of attributes also includes terms used in lieu of texture.

Sample Query Syntax

The following query returns selected attributes from tables "sacatalog", "legend", "mapunit", "component", "chorizon", "chtexturegrp", "chtexture" and "chtexturemod" for the SSURGO map units in a four square mile area of interest in Hall County Nebraska.

```
--Sample query begins…
--Note that a pair of dashes denotes the beginning of a comment.
SELECT
saversion, saverest, -- attributes from table "sacatalog"
l.areasymbol, l.areaname, l.lkey, -- attributes from table "legend"
musym, muname, museq, mu.mukey, -- attributes from table "mapunit"
comppct_r, compname, localphase, slope_r, c.cokey, -- attributes from
table "component"
hzdept_r, hzdepb_r, ch.chkey, -- attributes from table "chorizon"
sandtotal_r, silttotal_r, claytotal_r, --total sand, silt and clay
fractions from table "chorizon"
sandvc_r, sandco_r, sandmed_r, sandfine_r, sandvf_r,--sand sub-fractions
from table "chorizon"
texdesc, texture, stratextsflag, chtgrp.rvindicator, -- attributes from
table "chtexturegrp"
texcl, lieutex, -- attributes from table "chtexture"
texmod -- attributes from table "chtexturemod"

FROM sacatalog sac
  INNER JOIN legend l ON l.areasymbol = sac.areasymbol AND l.areatypename
= 'Non-MLRA Soil Survey Area'
    INNER JOIN mapunit mu ON mu.lkey = l.lkey
    AND mu.mukey IN

('107559','107646','107674','107682','107707','107794','107853','107854','
107865','107867','107869','107870','107871')
      LEFT OUTER JOIN component c ON c.mukey = mu.mukey
        LEFT OUTER JOIN chorizon ch ON ch.cokey = c.cokey
          LEFT OUTER JOIN chtexturegrp chtgrp ON chtgrp.chkey = ch.chkey
            LEFT OUTER JOIN chtexture cht ON cht.chtgkey = chtgrp.chtgkey
              LEFT OUTER JOIN chtexturemod chtmod ON chtmod.chtkey =
cht.chtkey

--WHERE…
```

```
--ORDER BY l.areaname, museq, comppct_r DESC, compname, hzdept_r --
standard soil report ordering
--Sample query ends.
```

Sample Query Description

For a description of the tables and columns included in the above query that are not related to soil texture or terms used in lieu of texture, please refer to the sample query document titled "Fundamental Query".

The attributes related to soil horizon or layer texture are distributed among four tables:

Table "chorizon"

The "component horizon" table records the total sand, silt and clay fractions, as well as the sand sub-fractions, from which soil texture class names for the corresponding soil horizon or layer are derived. Each of these values is recorded as a weight percentage of the less than two millimeter fraction, and for each of these attributes, a low, representative and high value are recorded. For additional information about HLRV attributes, please see the section titled "High, Low and Representative Values" in the Soil Data Mart Query Guide.

Table "chtexturegrp"

The "texture group" table records a group of soil texture class names or terms used in lieu of texture, and their corresponding texture modifiers, if any, for the corresponding soil horizon or layer in table "chorizon". For most soil horizons or layers, there will be only one associated texture group, but there may be more than one where the soil horizon or layer is stratified or when different texture groupings occur in the same soil horizon or layer.

The soil horizon or layer texture groups recorded in this table are complex strings that include all texture class names or terms used in lieu of texture, and all corresponding texture modifiers, if any, for all textures or terms used in lieu of texture that occur in the same group.

Notice that a left outer join is used to include this table and table, table "chtexture" and table "chtexturemod". In general, every soil horizon or layer should have at least one corresponding texture group, but because this is not strictly enforced, a left outer join is used to avoid losing any soil horizons or layers that have no corresponding texture group.

Column chtexturegrp.texdesc

The column records the complex texture group name, where full texture class name, full terms used in lieu of texture and full texture modifier names are used.

Column chtexturegrp.texture

This column record the complex texture group name, where acronyms are used for texture class names, terms used in lieu of texture and texture modifier names.

Below are some sample values of chtexturegrp.texdesc, along with the corresponding value of chtexturegrp.texture.

chtexturegrp.texdesc	chtexturegrp.texture
stratified coarse sand to gravelly coarse sand	SR- COS GR-COS
silt loam	SIL
muck	MUCK
stratified silt loam	SR- SIL
gravelly clay loam	GR-CL
stratified sandy loam to loam to silt loam to silty clay loam	SR- SL L SIL SICL
very gravelly peaty coarse sandy loam	GRV-PT-COSL
very stony slightly decomposed plant material	STV-SPM
stratified mucky peat to silt loam to ashy sand	SR- MK-PEAT SIL ASHY-S

Column chtexture.stratextsflag

This column records a Boolean value ("Yes" or "No") that indicates whether or not the textures in the corresponding texture group are stratified. Stratified is defined as "arranged in or composed of strata or layers". In other words, we are referring to strata or layers *within* a soil horizon or layer, where what varies from layer to layer may or may not include soil texture. When this flag is set, the corresponding value of chtexturegrp.texdesc typically begins with "Stratified ", and the corresponding value of chtexturegrp.texture typically begins with "ST- ".

Column chtexture.rvindicator

The column records a Boolean value ("Yes" or "No") that indicates whether or not the corresponding texture group is considered to be the one that is representative for the corresponding soil horizon or layer. In general, only one texture group should be representative for the corresponding soil horizon or layer, but because this is not strictly enforced, you may encounter cases where more than one texture group is marked as representative, or no texture group is marked as representative.

Table "chtexture"

The "texture" table records the soil texture class names or terms used in lieu of texture for the corresponding texture group in table "chtexturegrp". While the majority of texture groups are composed of a single soil texture class name or term used in lieu of texture, there may be more than one.

For any given record in this table, a texture class name may be recorded, or a term used in lieu of texture may be recorded, but both a texture class name and a term used in lieu of texture should not be recorded, although this is not enforced.

Notice that a left outer join is used to include this table. Since columns chtexturegrp.texdesc and chtexturegrp.texture can't be manually entered, these columns will only contain a valid value when there are one or more records in table "chtexture", at the time they were calculated. But since nothing prevents the accidental deletion of records in table "chtexture" after the concatenated values in table "chtexturegrp" were created by a calculation, a left outer join is used.

Column chtexture.texcl

This column records a soil texture class name. The values found in this column are restricted those of a domain named "texture_class". The complete list of the members of domain "texture_class" is available in the metadata report titled "Domains Report".

Samples include "Clay", Silty clay loam" and "Very fine sand".

Column chtexture.lieutex

This column records a term used in lieu of a texture class name. The values found in this column are restricted those of a domain named "terms_used_in_lieu_of_texture". The complete list of the members of domain "terms_used_in_lieu_of_texture" is available in the metadata report titled "Domains Report".

Samples include "Flagstones", "Gravel" and "Peat".

Table "chtexturemod"

The "texture modifier" table records the texture modifiers for the corresponding texture class name or term used is lieu of texture in table "tchtexture". The majority of time, there will be no texture modifier associated with a texture class name or term used in lieu of texture, but having an associated texture modifier is not uncommon either. It is relatively rare for there to be more than one texture modifier associated with a given texture class name or term used in lieu of texture.

Although texture modifiers are more commonly associated with a texture class name, they may also be associated with a term used in lieu of texture.

Notice that a left outer join is used to include this table. That is because it is not uncommon to have no texture modifier associated with a soil texture class name or term used in lieu of texture, therefore a left outer join is required in order to preserve those soil texture class names or terms used in lieu of texture that have no associated texture modifier.

Column chtexturemod.texmod

This column records a texture modifier name. The values found in this column are restricted those of a domain named "texture_modifier". The complete list of the members of domain "texture_modifier" is available in the metadata report titled "Domains Report".

Samples include "Cobbly", Gravelly" and "Mucky".