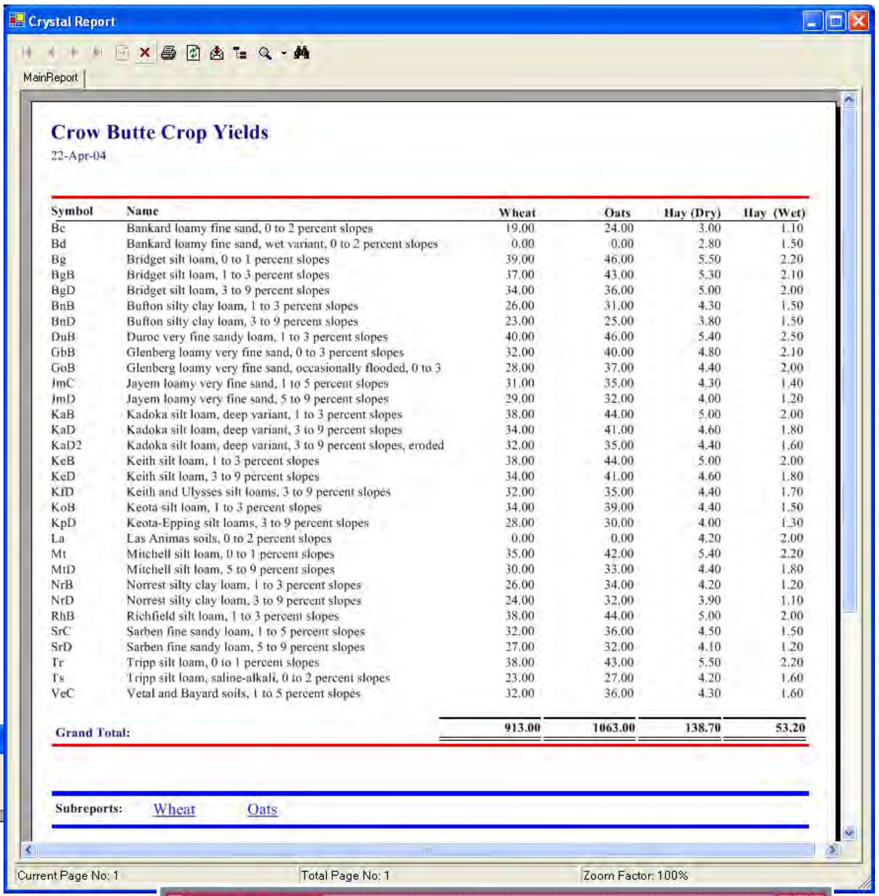
Create Crystal Reports with SML

SML can use Visual Basic to generate a Crystal Report and subreports for a vector database in the TNT products. This script (shown on the back) is data specific but readily adaptable for use with other vector objects. The script imports the form from Visual Basic, creates a class instance for the form, then prompts for the vector object to create the report for. The tables and fields desired for the report are specified in the script. Once the Visual Basic data table is initialized by the script, the specified fields from each record are read into the Visual Basic table, which is used to generate the Crystal Report. The script also makes use of prior settings made in Crystal Reports that specify which fields are available to the Crystal Reports engine and what subreports you want.



Crow Butte Crop Yields

22-Apr-04

Symbol	Name	Wheat	Oats	Hay (Dry)	Hay (Wet)
Bc	Bankard loamy fine sand, 0 to 2 percent slopes	19.00	24.00	3.00	1.10
Bd	Bankard loamy fine sand, wet variant, 0 to 2 percent slopes	0.00	0.00	2.80	1.50
Bg	Bridget silt loam, 0 to 1 percent slopes	39.00	46.00	5.50	2.20
BgB	Bridget silt loam, 1 to 3 percent slopes	37.00	43.00	5.30	2.10
BgD	Bridget silt loam, 3 to 9 percent slopes	34.00	36.00	5.00	2.00
BnB	Bufton silty clay loam, 1 to 3 percent slopes	26.00	31.00	4.30	1.50
BnD	Bufton silty clay loam, 3 to 9 percent slopes	23.00	25.00	3.80	1.50
DuB	Duroc very fine sandy loam, 1 to 3 percent slopes	40.00	46.00	5.40	2.50
GbB	Glenberg loamy very fine sand, 0 to 3 percent slopes	32.00	40.00	4.80	2.10
GoB	Glenberg loamy very fine sand, occasionally flooded, 0 to 3	28.00	37.00	4.40	2.00
JmC	Jayem loamy very fine sand, 1 to 5 percent slopes	31.00	35.00	4.30	1.40
JmD	Jayem loamy very fine sand, 5 to 9 percent slopes	29.00	32.00	4.00	1.20
KaB	Kadoka silt loam, deep variant, 1 to 3 percent slopes	38.00	44.00	5.00	2.00
KaD	Kadoka silt loam, deep variant, 3 to 9 percent slopes	34.00	41.00	4.60	1.80
KaD2	Kadoka silt loam, deep variant, 3 to 9 percent slopes, eroded	32.00	35.00	4.40	1.60
KeB	Keith silt loam, 1 to 3 percent slopes	38.00	44.00	5.00	2.00
KeD	Keith silt loam, 3 to 9 percent slopes	34.00	41.00	4.60	1.80
KfD	Keith and Ulysses silt loams, 3 to 9 percent slopes	32.00	35.00	4.40	1.70
KoB	Keota silt loam, 1 to 3 percent slopes	34.00	39.00	4.40	1.50
KpD	Keota-Epping silt loams, 3 to 9 percent slopes	28.00	30.00	4.00	1.30
La	Las Animas soils, 0 to 2 percent slopes	0.00	0.00	4.20	2.00
Mt	Mitchell silt loam, 0 to 1 percent slopes	35.00	42.00	5.40	2.20
MtD	Mitchell silt loam, 5 to 9 percent slopes	30.00	33.00	4.40	1.80
NrB	Norrest silty clay loam, 1 to 3 percent slopes	26.00	34.00	4.20	1.20
NrD	Norrest silty clay loam, 3 to 9 percent slopes	24.00	32.00	3.90	1.10
RhB	Richfield silt loam, 1 to 3 percent slopes	38.00	44.00	5.00	2.00
SrC	Sarben fine sandy loam, 1 to 5 percent slopes	32.00	36.00	4.50	1.50
SrD	Sarben fine sandy loam, 5 to 9 percent slopes	27.00	32.00	4.10	1.20
Tr	Tripp silt loam, 0 to 1 percent slopes	38.00	43.00	5.50	2.20
Ts	Tripp silt loam, saline-alkali, 0 to 2 percent slopes	23.00	27.00	4.20	1.60
VeC	Vetal and Bayard soils, 1 to 5 percent slopes	32.00	36.00	4.30	1.60
Grand Total:		**913.00**	**1063.00**	**138.70**	**53.20**

Subreports: Wheat Oats

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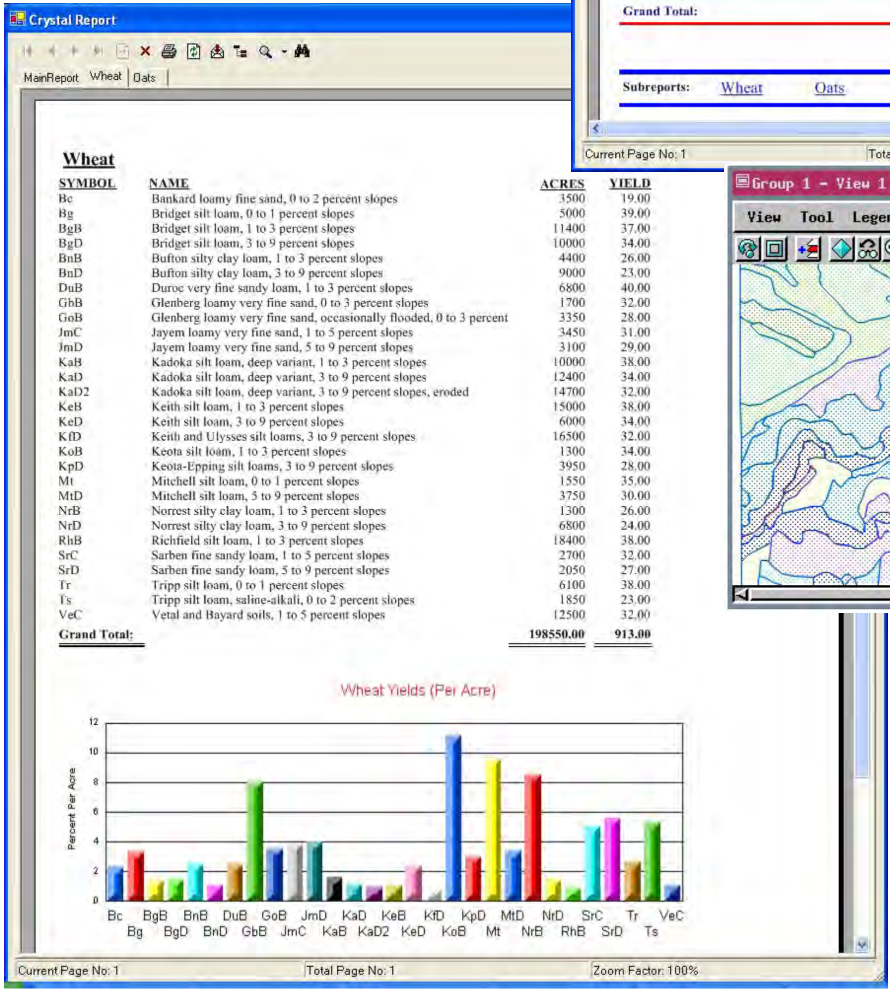

Wheat

SYMBOL	NAME	ACRES	YIELD
Bc	Bankard loamy fine sand, 0 to 2 percent slopes	3500	19.00
Bg	Bridget silt loam, 0 to 1 percent slopes	5000	39.00
BgB	Bridget silt loam, 1 to 3 percent slopes	11400	37.00
BgD	Bridget silt loam, 3 to 9 percent slopes	10000	34.00
BnB	Bufton silty clay loam, 1 to 3 percent slopes	4400	26.00
BnD	Bufton silty clay loam, 3 to 9 percent slopes	9000	23.00
DuB	Duroc very fine sandy loam, 1 to 3 percent slopes	6800	40.00
GbB	Glenberg loamy very fine sand, 0 to 3 percent slopes	1700	32.00
GoB	Glenberg loamy very fine sand, occasionally flooded, 0 to 3 percent	3350	28.00
JmC	Jayem loamy very fine sand, 1 to 5 percent slopes	3450	31.00
JmD	Jayem loamy very fine sand, 5 to 9 percent slopes	3100	29.00
KaB	Kadoka silt loam, deep variant, 1 to 3 percent slopes	10000	38.00
KaD	Kadoka silt loam, deep variant, 3 to 9 percent slopes	12400	34.00
KaD2	Kadoka silt loam, deep variant, 3 to 9 percent slopes, eroded	14700	32.00
KeB	Keith silt loam, 1 to 3 percent slopes	15000	38.00
KeD	Keith silt loam, 3 to 9 percent slopes	6000	34.00
KfD	Keith and Ulysses silt loams, 3 to 9 percent slopes	16500	32.00
KoB	Keota silt loam, 1 to 3 percent slopes	1300	34.00
KpD	Keota-Epping silt loams, 3 to 9 percent slopes	3950	28.00
Mt	Mitchell silt loam, 0 to 1 percent slopes	1550	35.00
MtD	Mitchell silt loam, 5 to 9 percent slopes	3750	30.00
NrB	Norrest silty clay loam, 1 to 3 percent slopes	1300	26.00
NrD	Norrest silty clay loam, 3 to 9 percent slopes	6800	24.00
RhB	Richfield silt loam, 1 to 3 percent slopes	18400	38.00
SrC	Sarben fine sandy loam, 1 to 5 percent slopes	2700	32.00
SrD	Sarben fine sandy loam, 5 to 9 percent slopes	2050	27.00
Tr	Tripp silt loam, 0 to 1 percent slopes	6100	38.00
Ts	Tripp silt loam, saline-alkali, 0 to 2 percent slopes	1850	23.00
VeC	Vetal and Bayard soils, 1 to 5 percent slopes	12500	32.00
Grand Total:		**198550.00**	**913.00**

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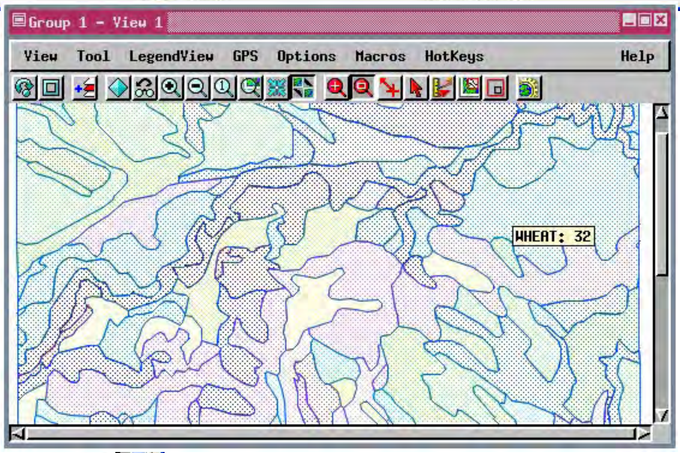

The subreports are listed at the bottom of the main report (shown above) until they have been opened and then they are available as tabbed panels (left). The setup of the graph and which subreports to create are designated in Crystal Reports before running the SML script. If you ran the script in SML/Edit Script mode, you have to close the Crystal Report for the SML Editor functions to be active because the script is executing as long as the Crystal Report window is open. The subreport illustrated at the left makes it immediately clear which soil types are best for growing wheat.

Sample scripts have been prepared to illustrate how you might use the features of TNTmips' SML scripting language. The full script is printed below for your quick perusal. The sample script illustrated can be downloaded from the SML script exchange at www.microimages.com/freestuf/smlscripts.htm.

import the Visual Basic Form

```
$import cbsoils_report.crystal_form
```

create an instance of the form's class in SML

```
class crystal_form cf;
```

declare variables

```
string symbol, name;
numeric acres, wheat, oats, haydry, haywet;
```

get input vector

```
vector v;
GetInputVector(v);
```

declare more variables

```
numeric num_d_records = NumRecords(v.poly.DESCRIPTN);
numeric num_y_records = NumRecords(v.poly.YIELD);
numeric current;
```

initialize the Datatable in Visual Basic

```
cf.InitializeDataTable();
```

add the records from the vector to Visual Basic

loops through records of DESCRIPTN table

```
for current  = 1 to num_d_records {
      symbol = TableReadFieldStr(v.poly.DESCRIPTN, “SYMBOL”, current);
      name = TableReadFieldStr(v.poly.DESCRIPTN, “NAME”, current);
      acres = TableReadFieldNum(v.poly.DESCRIPTN, “ACRES”, current);
      cf.AddDescriptnRecord(symbol, name, acres);
}
```

loops through records of YIELD table

```
for current  = 1 to num_y_records {
      symbol = TableReadFieldStr(v.poly.YIELD, “SYMBOL”, current);
      wheat = TableReadFieldNum(v.poly.YIELD, “WHEAT”, current);
      oats = TableReadFieldNum(v.poly.YIELD, “OATS”, current);
      haydry = TableReadFieldNum(v.poly.YIELD, “HAYDRY”, current);
      haywet =TableReadFieldNum(v.poly.YIELD, “HAYWET”, current);
      cf.AddYieldRecord(symbol, wheat, oats, haydry, haywet);
}
```

create and show the report after all the records are added

```
cf.InitializeReport();
cf.ShowForm();
```