Section 1

QuickReview

Thank you to the British Columbia Ministry of Forests for providing access to the PrognosisBC Tutorial Manual.

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1.1 QuickReview

QuickReview is for users familiar with FVS^{Ontario}.

If you have not used FVS^{Ontario} before, refer to the tutorials in Sections 2, 3, 4.

QuickReview is a step-by-step outline for using the three components of FVS^{Ontario}: Tree List Manager, SimProg, and ViewProg. It is meant for people familiar with FVS^{Ontario}.

For more detailed information on these programs, refer to the tutorials for each component (Sections 2, 3, 4).

You may find it useful to refer to the online help in Tree List Manager, SimProg, and ViewProg as you work through QuickReview. To use online help:

- press F1 or choose **Help** from the menu bar.

1.2 Tree List Manager QuickReview

QuickReview is for users familiar with FVS^{Ontario}.

For more information, refer to:
- Tree List Manager Tutorial, Section 2.
- Tree List Manager online Help through keyboard F1 or Help on the menu bar.

Tree List Manager translates an existing data file into a FVS^{Ontario} treelist based on the information you specify on four forms:

Tree List Manager Form

Project Setup	Step 1: Identify features of the input (data) files
Plot Info and **Tree Data** (both forms in the TLM Import Window)	Step 2: Specify the input file
	Step 3: Verify correct mapping of Source Field Names
	Step 4: Group plots for compilation purposes
Export Setup	Step 5: Name the treelist
	Step 6: Validate the Plot Info and Tree Data

Step 1: Identify features of the input (data) files

Project Setup

1. On the **Project Setup** form, identify the Plot Type (Fixed Area, Prism Plot using DBH, or Prism Plot using Size Classes).
2. Specify whether alpha or numeric species codes are used.
3. Specify whether data will be exported for creation of FVS and / or SVS files, and whether Basic or Full Sets of data will be used.
4. Specify how plots will be displayed in SVS.
5. Click OK to continue.

Step 2: Specify the input file

Tree Data

1. Click the "Import Data to TLM" icon.
2. Specify the format of source data (dbf, MSExcel, or MSAccess) and identify the source file (and in the case of MSExcel files, the range name).

Step 3: Verify correct mapping of Source Field Names

1. At minimum, a treelist must include plot ID, tree ID, tree count, species, status and DBH.
2. Ensure that all mandatory Field Names (those marked with an asterisk) are correctly mapped to the correct Source Field Name. If they are, click OK. If they are not, click on the appropriate cell in the Source Field

Name column, select the desired Source Field Name from the drop-down menu and click OK.

Step 4: Group plots for compilation purposes

Plot Info

Plot Id will already be provided on the Plot Info form since that information is required on the original spreadsheet, but Group Name, BA Factor or Plot Size information must still be entered.

1. All plots to be compiled together (assuming for instance that they are from the same stand) will be assigned the same numeric Group Name.
2. Enter other required data – BA factor, Plot Radius, etc. for each plot.
3. Click the Save Data icon to save the new .tlm file.

Step 5: Name the treelist

Export Setup

1. Click the Export Data icon on the completed TLM – Tree List Manager window.
2. Assign a Prefix and a Postfix name to the file.
3. Check Create FVS files to create an FVSOntario tree list file.
4. Check Create SVS files to create an SVS tree list file.
5. Check Expand to per Hectare so that a hectare sized plot will be displayed in SVS.
6. Click OK to proceed with the export.

Step 6: Validate the Plot Info and Tree Data

Validation of the data is completed at export. Data is validated against a pre-set series of default codes for species, origin, status, quality, marking status, etc.. A pop-up screen will identify whether or not errors were encountered. If there were errors, the pop-up will indicate whether the errors were found in the Plot Info or Tree Data forms. Assuming there were errors:

1. Click OK on the pop-up screen.
2. Scroll through the Plot Info or Tree Data forms to identify the errors.
3. Either return to the source file and make the correction, or use the pull-down menu in the TLM window to assist in making the corrections.
4. Click the Export Data icon again to complete the export and confirm that no further errors are noted in the data.

1.3 SimProg QuickReview

QuickReview is for users familiar with FVSOntario

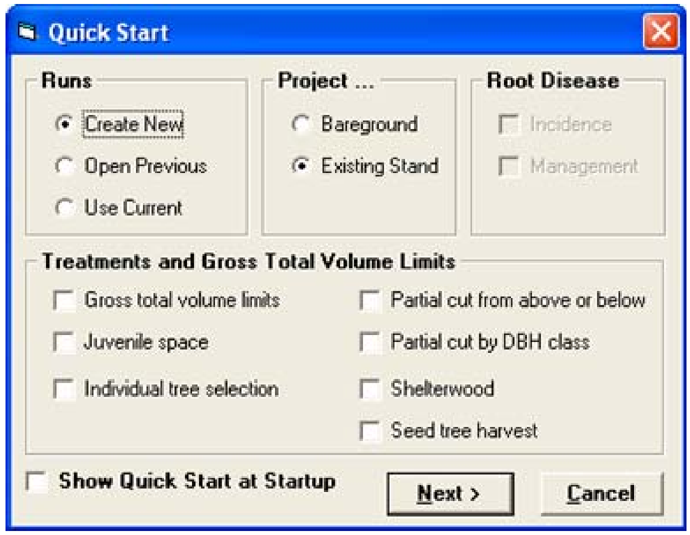
For more information, refer to:
- SimProg Tutorial, Section 3
- SimProg online Help through keyboard F1 or **Help** menu

SimProg projects a stand based on site information, existing stand conditions or bareground assumptions, merchantable volume limits, and management treatments specified in thirteen forms. An additional three forms specify how to view results.

SimProg Form	
Duration and Labels	Name and describe the run
Site Information	Describe the site
Existing Stand	Describe the type and size of plot, inventory date and source file location
Merchantable Volume Limits	Define the merchantable volume limits for each species in the simulation
Planted / Natural Regen. Assumptions	Describe the bareground assumptions on which the projection will be based
Model Run Options	
Juvenile Spacing	Define harvesting treatments
Thin from Above or Below	
Thin by DBH Class	
Individual Tree Selection	
Shelterwood	
Seedtree Harvest	
Supplemental Keywords	
Select Runs to Compare	View results
Select Stand Data to Tabulate	
Graph Stand Level Statistics	
SimProg main window	Review run conditions and run the model

SimProg opens with a **Quick Start** option that leads users through the pertinent forms to create or open an existing run (if the **Show Quick Start at Startup** option is checked).

This feature is described in the SimProg tutorial, Section 3



Step 1: Name and describe the run

Duration and Labels form

1. In the SimProg main window, check Clear Screen.
2. Under the **Runs** menu, select **NEW**.
3. On the **Duration and Labels** form, enter a **Run Identifier** (max. 8 characters) and **Run Description** (max. 54 characters).
4. Set the **Projection length** and **Time step**.
5. Click OK.

Step 2: Describe the site

Site Information form

1. Under the **Conditions** menu, select **Site Information**.
2. On the **Site Information** form, enter the principal species, forest type, stand age, and a measure of site productivity – site index, top height, or site class
3. Click OK.

Step 3: Describe the stand

Please read this important information about FVS^{Ontario} v3.0

Bareground projections in FVS^{Ontario} version 3.0 are not yet reliable, and so you should assume an existing stand of at least 5 years or so and develop a tree list with regeneration of a minimum of 1.0 m (or whatever is realistic for the species in question).

Existing stand simulations

For an existing stand, you will need individual tree data measured in one or more plots. Tree data must be processed as a treelist using Tree List Manager to ensure its compatibility with SimProg.

Existing Stand form

1. Under the **Conditions** menu, select **Projection based on... ▸ Existing Stand**.
2. On the **Existing Stand** form, enter the plot type(s), plot size, number of plots, and inventory year.
3. Under Tree Data File, browse for and highlight the appropriate source file.
4. Click OK.

Step 4: Define the merchantability limits

Merchantable Volume Limits form

1. Under the **Conditions** menu, select **Merch. Vol. limits**.
2. On the **Merchantable Volume Limits** form, for each species in the simulation specify the minimum usable DBH, top diameter, and stump height.
3. Click OK.

Step 5: Define treatments (optional)

Juvenile Spacing form

Six options for treatment are available: **Juvenile Spacing**, **Thin from Above or Below, Thin by DBH Class, Individual Tree Selection, Shelterwood and Seedtree Harvest.** The treatments can be applied individually or in combination. The juvenile spacing and thinning treatments can be used only once in a simulation (the selection and shelterwood treatments provide an option for recurring treatments).

Juvenile spacing

This treatment is a "thin from below."

1. Under the **Conditions** menu, select **Treatments** ▸ **Juvenile Spacing**.
2. On the **Juvenile Spacing** form, enter the desired post-treatment stand condition (basal area or residual density), and the criterion that will be used to determine when the stand will be spaced (age, year, or top height).
3. Click OK.

Thin from above or below

Thin from Above or Below form

1. Under the **Conditions** menu, select **Treatments** ▸ **Thin from Above or Below**.
2. On the **Thin from Above or Below** form, select either a largest first (thin from above) or smallest first (thin from below) thinning strategy.
3. Enter the desired post-treatment stand condition (in terms of either basal area or density), and the criterion that will be used to determine when the stand will be treated (either age, year, QMD, basal area, or top height).

Partial Harvest Regen. Assumptions form

4. If the treatment is expected to trigger a regeneration event, click in the **Regeneration** checkbox; the **Manual** option will automatically become enabled. Click Assumptions. The **Regeneration Assumptions** form will open.

5. Select the appropriate establishment regime (natural stand or plantation).

6. Specify the species composition by **SPH** or **Percentage** (after regeneration is complete) in the **Specify Stocking By** frame.

7. Click OK.

Thin by DBH class

Thin by DBH Class form

The **Thin by DBH Class** form allows you to divide the stand into components that can be treated individually. Stand components are defined in terms of species and diameter limits (e.g., all jack pine 4.6–12.5 cm DBH), and all components must be mutually exclusive. Any portion of an existing stand that is not included in one of the described components *will not be treated*.

1. In the **Target Stocking by DBH Class** table, define the components of the stand (using combinations of minimum DBH, maximum DBH, and species) that will be treated, and the stems per hectare in each component post-treatment.

2. Specify the parameter that will be used to control the timing of treatment (either age, year, quadratic mean diameter [QMD], basal area, or top height) and a critical value for that parameter. If this parameter is time-based (age or year), any treatment can occur only once. If it is based on stand measurements, treatment can be set to reoccur each time the critical value is met (i.e., thinning will occur every time the stand achieves a basal area of 26 m^2/ha).

Partial Harvest Regen. Assumptions form

3. If the treatment is expected to trigger a regeneration event, click in the **Regeneration** checkbox; the **Manual** option will automatically become enabled. Click Assumptions. The **Partial Harvest Regen. Assumptions** form will open; fill it out as described above.

Individual Tree Selection

Individual Tree Selection form

The Individual Tree Selection – Basal Area form allows you to define how and when the stand will be harvested.

1. The timing of the first selection harvest is determined by year or age. Subsequent harvests are a function of the cutting cycle.

2. Residual stand structure is determined by the Diminution Quotient or "q-factor".

3. Residual Basal Area determines how much of the stand will be harvested.

4. The minimum and maximum diameter class limits dictates the range of tree sizes that will be available for harvest. Diameter class width is normally set at 2 cm and a q of 1.16.

5. Legacy Trees has little relevance in selection management, but it is included as an option . Usually the number of trees and average diameter are both set at 0 unless stems exceeding the managed dbh structure limits is desired.

Shelterwood

Shelterwood form

FVS[Ontario] is configured in such a way that managers may model either a full four-cut shelterwood approach, or a combination of the different stages.

1. Schedule the harvest by either identifying the specific year or the stand age at which it should occur.
2. Set the method of harvest. The Selected Method varies somewhat depending on harvest stage. Preparatory Cuts are controlled by either Residual Crown Closure or Residual Basal Area. For Regeneration and First Removal Cuts, Residual Crown Closure, Residual Basal Area or Residual Trees may be specified. Final Removals are controlled by either Residual Trees (#/ha) or Residual Basal Area.
3. Specify the range of diameters within harvested trees will be selected.
4. Click OK.

Supplemental Keywords form

Properly implemented Shelterwood harvests at the regeneration stage are intended to be **from below**, with primarily the larger, better seed producing stems retained after the Regeneration Cut. FVS[Ontario] currently has to be directed to thin from below, or the model will simply remove stems evenly from all size classes. To provide that direction, it is necessary that you input certain **Keywords**.

5. On the SimProg main window, select **Conditions** ▸ **Supplemental Keywords**.
6. Complete the Supplemental Keyword form (as per direction in Section 3), include a Description, and click OK.
7. The SimProg main window will now appear. Click Execute.

Seedtree Harvest

Seedtree harvests are modified clearcuts. Few prescriptive inputs are required for modeling in FVS[Ontario].

1. Specify the year or stand age at which the harvest will occur, how many trees will be retained following the Seed Cut, when the Removal Cut will occur, and the percentage of seed trees that will be removed.
2. Click OK.

Step 6: Set Run Options

Model Run Options form

Under the **Runs** menu, select **Options** to open the **Model Run Options** form and set your run options. Run option settings are global, affecting all runs executed subsequent to the change, and can be modified at any time using the **Model Run Options** form. The available options are:

1. **Save Output as ASCII files** - saves text files of summary tables to import into word processors or spreadsheets, or for use with the **US Style Output** option under the **View Results** menu. This option produces detailed output containing, among other things, a list of every step carried out by FVS in the simulation, and any error messages generated by the model.

2. **Import Projected Treelist** – select this option if you wish to view output by species and DBH class using ViewProg. Not selecting this option can save time when doing multiple runs, particularly for stands with large treelists and many time steps. Always selecting this option can result in large database files which may use excessive space on small hard drives.

3. **Create SVS files** – select this option if you wish to use the Stand Visualization System (SVS) to generate simulated images of your stand. Refer to Section 2.0 instructions on using SVS.

4. **Review Actual Keywords** – select this option if you are an advanced user and wish to view the keyword file before the run. This option allows expert users of FVS^Ontario^ to monitor and extend the capabilities of the SimProg interface.

5. **Use Tree Marking During Initial Harvest** – select this option if your input file includes the marked or unmarked status of trees in the sample. Marked trees will be harvested and resulting volumes will be reported and stand changes will be projected. If this option is not selected, FVS^Ontario^ will select trees for harvest based on the criteria inputted into the model.

Step 7: Run the model

1. Review the summary run conditions information on the SimProg main window. Using the Edit buttons, revisit/revise any conditions as necessary.

2. Click Execute.

SimProg will run FVS in a DOS window that will be visible either in front of or behind the SimProg window. If the DOS window is behind the SimProg window, you will just see a message box with "Importing Treelist Data" When DOS is finished executing, the DOS window will disappear. Users of newer computers may observe only a quick flash of the DOS screen, followed by a fast return to the main SimProg main window.

Step 8: View the results

The following procedure outlines steps to view output based on stand summary statistics. To view types of output where species composition or diameter distribution is important, see the ViewProg QuickReview (Section 1.4) or ViewProg Tutorial (Section 4.0).

1. Under the **View Results** menu, select **Stand Summaries**.

Select Runs to Compare form

2. On the **Select Runs to Compare** form, click to select the available runs for which you wish to review results, and check either table or graph output.
3. Click OK.

Tables

Select Stand Data to Tabulate form

On the **Select Stand Data to Tabulate** form, select the descriptive parameters that you want listed in your output table. Always include at least one of the time-based parameters. The output table will be displayed in a **View Text** window, from which it can be printed or saved.

Graphs

Graph Stand Level Statistics form

SimProg offers great flexibility for customizing graphical output. On the **Graph Stand Level Statistics** form, select the stand parameters to display on each axis, specify text for axis labels and chart titles, control the appearance of line markers and grids, and select printing options. Note that some option changes will result in immediate changes in the displayed chart, and others do not appear until you click Apply.

1.4 ViewProg QuickReview

QuickReview is for users familiar with FVS[Ontario].

For more information, refer to:
- ViewProg Tutorial, Section 4
- ViewProg online Help through keyboard F1 or **Help** menu

ViewProg displays stand (density) and stock (GTV) information by species and DBH class for each time step in a SimProg projection. This information can be displayed as tables, which can be saved or printed, and charts that can be pasted into another application or printed. Users specify the format of information on six forms.

ViewProg Form	
	Step 1: Open ViewProg
Stand Structure Reporting System	Step 2: Select run and report type
Stand & Stock Tables: <Run Name>	Step 3: Specify stand or stock table, year(s) to display, and DBH class parameters
Report Description **Chart Print Preview**	Step 4: Select table or chart, then view, edit, and print or export
Species Composition Through Time: <Run Name> **Report Description**	Step 5: Species composition chart and table: select statistic to plot, edit, and print or export

Step 1: Open ViewProg

ViewProg can be opened in two ways:

1. directly, by double clicking on the ViewProg executable file (in the C:\FVSOn\ViewProg folder) on your computer
2. from the SimProg main window, by selecting **View Results ▸ By Species and/or DBH Class**

Step 2: Select run and report type

Stand Structure Reporting System form

1. On the **Stand Structure Reporting System** form, select the run(s) you wish to display and check the desired report type (Stand & Stock Tables or Species Composition). Note that only runs for which projected treelists were imported during execution will show as available.
2. Click OK.

Step 3: Specify stand or stock table, year(s) to display, and DBH class parameters

Stand & Stock Tables form

1. If you selected **Stand & Stock Tables** in Step 2, a **Stand & Stock Tables** form will open to a preview window with a default chart of stand density. Click Refresh to update the chart after making any changes to the form.
2. Specify the desired statistic (density or GTV), year(s) to display, and the DBH class characteristics.

Step 4: Select table or chart, then view, edit, and print or export

1. To produce tabular output, click View Reports on the **Stand and Stock Tables** form.

Report Description form

2. Edit the report title by overtyping on the **Enter Report Description** form, and click OK to generate the desired table. Use the buttons at the top of the table window to **Print** or **Export** the report, use the arrows in the upper left to advance through the pages of the report, and click the X in the upper right to **Cancel** and close the window.

   To produce graphic output, click View Charts on the **Stand and Stock Tables** form.

Chart Print Preview form

   Customize the chart titles, y-axis units, grids on the **Chart Print Preview** form and select whether to print or save the chart to another application.

Step 5: Species composition chart and table: select statistic to plot, edit, and print or export

Species Composition form

1. If you selected **Species Composition** in Step 2, a **Species Composition Through Time** form will open.
2. Specify the desired statistic to display; edit chart titles, y-axis units, and grids; and select whether to print or save the chart to another application.

Report Description form

3. To create a table, click View Report. On the **Report Description** form, edit the title by overtyping and click OK to generate the table. Use the buttons at the top of the table window to **Print** or **Export** the report, use the arrows in the upper left to advance through the pages of the report, and click the X in the upper right to **Cancel** and close the window.