



ECOLOGICAL SCIENCES–FORESTRY TECHNICAL NOTE

Estimating Planting Stock for Woody Plantings Microsoft Excel Spreadsheet * Robert Logar, State Staff Forester

Introduction: The following provides background and instructions to use the Estimating Planting Stock for Woody Plantings worksheet. The Microsoft Excel spreadsheet provides an efficient means of calculating the amount of plant materials needed for area plantings (forest, wildlife, riparian).

General. The worksheet is designed to assist the planner in developing specifications for Field Office Technical Guide (FOTG), Section IV–Practice Standards and Specifications, 322–Channel Vegetation, 391–Riparian Forest Buffer, 612–Tree/Shrub Establishment, and similar area plantings. **It is not intended for linear plantings like windbreaks.**

Planners will be able to use this automated worksheet if they are familiar with the practice standards and have basic Excel spreadsheet skills. The state staff forester is responsible for any worksheet editing. Cells containing formulas are protected so the worksheet can not be corrupted accidentally. Data entry portions of the worksheet are shaded to make data entry easier.

To complete the automated worksheet certain data is required including channel lengths, buffer widths, species to be planted, 20-year crown widths, plant spacing, and number of plants per acre.

The Excel worksheet can be downloaded by accessing the Montana NRCS homepage at <http://www.mt.nrcs.usda.gov>. Click on 'Download Area' at the bottom of the left-hand column and arrow down to the 'technical' folder, and then to the "forestry" folder. Open the folder, select the file named [plantcalc.xls](#), and save it in the desired location on your computer.

FEATURES. The worksheet features: 1) shaded data entry cells, and 2) interactive cells that populate automatically when data entry cells are filled. This allows the planner to track design inputs and outcomes throughout the worksheet.

PROTECTION. Entries can only be made in designated cells to protect from accidentally corrupting the worksheet. It is recommended the user save a blank copy of the worksheet as a template. Begin by saving the worksheet using another filename.

PRINTING. The worksheet can be printed using the default office laser printer or can be printed in color to see shaded portions better.

WORKSHEET INSTRUCTIONS. Fill in shaded portions of worksheet. A field inventory is needed prior to filling out worksheet. Identify landowner/operator, conservationist, date, and location on worksheet and populate where shaded.

Riparian Acreage Calculator Section

- **Stream Name**—Enter stream name or segment.
- **Reach**—Separate stream into planning segments or reaches and label each.
- **Channel Length**—Enter the channel length, in feet, for each reach.
- **Average Buffer Width**—Enter the average buffer (or treatment area) width, in feet, for each reach. If treating both sides of the stream, enter the combined widths. Total acres for each reach are calculated from length and width entries.
- **Zones**—Partition the treatment areas into wet zones (ZONE 1): areas closest to the stream, and drier zones (ZONES 2, 3): areas farthest from the stream. Refer to FOTG Practice Standards 322—Channel Vegetation and 391—Riparian Forest Buffer for exact definitions of each.
 - **% Total**—Enter the percent of each zone to the total treatment area. Use whole numbers to express percent.
 - **% Plantable**—Estimate the amount of area that should be planted based on the appropriate practice standard and desired/historic plant community. This area is currently non-stocked/poorly stocked and timely natural regeneration is unlikely. Enter amount as a percent in whole numbers.

Plant Calculator Section

- **Zones**—Label or identify zones.
- **Acres**—Enter plantable acres, either from the Riparian Acreage Calculator or other sources.
- **Species**—List the species to be planted using common names.
- **Crown Width**—Enter the 20-year crown width in feet. Appendix 2, TABLE 1 of *“Windbreaks for Montana - a landowner’s guide”* Montana State University—Cooperative Extension Service, Bulletin 336, July 1986 shows crown widths for a number of species. Estimate others that are not listed in bulletin. Entries in this column help generate the percent (%) canopy column data.
- **Desired Spacing**—Enter plant spacing in feet based on species characteristics. Common spacing guidelines would be: shrubs less than 10 feet in height: 3–5 feet; shrubs/trees from 10 to 25 feet in height: 5–8 feet; trees greater than 25 feet in height: 8 to 13 feet. Entries in this column help generate the percent (%) spacing column data.
- **Plants/Acre**—Enter the number of plants/acre of each species to be planted. Entries in this column help generate data in the columns for Stocking, plants per zone, and in total.

Designing woody plantings:

The *Riparian Acreage Calculator* will automatically calculate plantable riparian and channel areas. Adjust widths and percent of areas needing planting based on the appropriate practice standard and desired/historic plant community.

The *Plant Calculator* will automatically calculate the total number of plants by species and zone. A combined total for the zones is given for each species in the far right-hand Total column.

The three columns in the Stocking category display the design characteristics of the planting. Adjust numbers in the Plants/acre column to achieve the desired stocking based on the appropriate practice standard and desired/historic plant community.

[Attached is an example of a completed worksheet.](#)

* Excel spreadsheet designed by Tim Wiersum, Forester, Columbia Basin Area, Missoula, MT