Section 2  
Estimating the Use Value of Horticultural Land

Unlike the *annual* investments made in traditional agricultural enterprises, most horticultural investments extend over many years. SLEAC provides use-value estimates of horticultural land devoted to orchard use. Unlike agricultural land, the data required for the estimation of orchard use values are largely unavailable from published, secondary sources. Therefore, these estimates are based largely upon the professional opinion of Virginia Cooperative Extension and Department of Horticulture personnel knowledgeable in the area of apple and peach production.

For land devoted to vineyards and nurseries where data limitations make the estimation of use values problematic, SLEAC does not provide explicit use-value estimates. Instead, it recommends that each jurisdiction impute vineyard and nursery use values from the use-value estimates published for agricultural land. The use value of the vineyard or nursery items on the land (i.e. trees, plants, etc.) may be appraised by a jurisdiction’s assessing officer and then added to the agricultural use value of the land.

The Composite Orchard

The composite orchard is based on a typical Virginia apple operation. The use values of other types of orchards (i.e. peach, cherry, pear, and plum) are imputed from the apple orchard values and adjusted by varying the depreciation rate. The profitability of apple orchards can vary substantially depending upon the type of operation (fresh or processed fruit), rootstock, planting density, age of the trees, and management practices. To further complicate matters, the data required to objectively establish a typical apple orchard are not available from secondary sources. Therefore, a typical apple orchard was subjectively defined by making the following assumptions:

1. The orchard is planted on a 20-year cycle with a planting density of 250 trees per acre using semi-dwarf rootstock.

2. The percent of the fruit sold to the processed market and fresh market is calculated annually as a 10-year moving average (3 year lag due to data availability).

3. The percent of trees in: pre-production (1-3 years), early production (4-7 years), full production (8-15 years), and late production age (16-20 years) is calculated annually from yields/cycle provided by Virginia Cooperative Extension.

Local adjustments to the use-value estimates applicable to orchards (Appendix B, Table 1b) may be necessary depending on the specific characteristics of the orchard being assessed.

Net Orchard Income

Unlike annual agricultural operations, perennial orchard enterprises require several years of capital investments prior to realizing any positive income flow. These initial investments greatly complicate the estimation of net returns. Capital investments made during the pre-production years are assumed to be borrowed through regular financial channels at the same long-term interest rate used in the agricultural budgets. It is assumed that this debt is paid down in later years when the annual net return to the orchard enterprise becomes positive.

Appendix C, Table 4 shows the annual input costs incurred in the production of both processed and fresh market apples for the four production stages. The initial establishment costs are assumed to be the same for both production types and are averaged into the pre-production costs. Total revenue is calculated for each year within a cycle by multiplying the price received by yield (lbs/acre). Annual production costs (Total Fixed and Variable Costs) are subtracted from annual total revenues to arrive at an *Annual Net Loss/Income* (values in parentheses represent a net *loss*). For example, in TY2010 a typical apple orchard processing market apples (i.e., Market Apple Production) for its Pre-Production Cycle (1-3 years) realized an annual net *loss* of ($1,785.35) per acre. And, for its Full Production Cycle (7-15 years) had an annual net *income* of $880.85 per acre (Appendix C, Table 4).

A summary of the per-acre net returns for each of the four production stages is provided in Appendix C, Table 5 – Section 1.

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