

Projecting Crop Size by R. Thomas Schotzko*

While the 2001 crop is of manageable size the question remains as to whether enough apple acreage has been removed to significantly reduce crop potential. Using data from the latest fruit tree survey, the removal data from the traffic associations and the nursery survey by Lindsay Buckner at TreeTop, Inc. a spreadsheet has been developed to estimate potential crop size under a variety of assumptions. These projections should be viewed in terms of potential because the yields employed are those that more likely occur in large crop years. In recent years crop size has changed as much as twenty percent from year to year and these estimates are better measures of the up side potential.

Even with the removal of some 20,000 acres in the past 18 months crop potential remains quite high. Projecting crop size with no change in acreage from the figures provided in the above noted sources suggests that the industry still has the potential to exceed 100 million boxes fresh equivalent. With all the new trees in the ground, the industry could be producing as much as 105 to 106 million cartons fresh equivalent within 5 years.

The foregoing scenario is based on yields that are more representative of the yields achieved in 1998 and 2000. Reducing the yields to levels more likely representative of the crops in 1999 and 2001 may give a better indication of future crops in the off years. That scenario suggests that the crops will reach the low to mid 90 million box range in 3 to 5 years.

A more likely scenario is that Red Delicious acreage will continue to decline. Assuming 5% of the Red Delicious acreage is removed through 2010, potential crop size remains in the mid 90 million carton range through most of this decade. This assumes no change in the acreage of all other varieties, but uses the higher yields.

In order to keep crop size below 90 million cartons in a good year it is probably necessary to have a 40% reduction Red Delicious acreage over the next three years. Because of technological obsolescence the industry could probably benefit from removing all Red Delicious acreage over 20 years old. Over half of the Red acreage falls into that category, some 39,000 ac.

Prices by variety will likely cause some changes in acreage. Exactly what those changes will be is hard to predict, however. For the sake of discussion, assume the following pattern of change. First, prices for both Golden Delicious and Granny Smith have been at decent levels in most years recently. Hence, assume that removals and replanting is constant at 1% per year.

Gala prices have been at levels that will likely induce growers to maintain their Gala blocks, except for those blocks that do not color very well. Assume that over the next two years 5% of the acreage will be removed and 3% of the acreage will be planted each of those years. Over the remaining 7 years through 2010, removals and plantings are held constant at 3%. Fuji acreage is assumed to be constant, but 2% of the acreage is removed each year and 2% is planted.

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Combining all of these assumptions, the industry has the potential to produce crops in the 90 to 94 million carton range for the rest of the decade.

Many things can cause these projections to be inaccurate, including actions by both individuals and the industry. Market conditions in recent years, including this season provide a pretty good indication of the volume of fruit that can be sold at prices that don't break the grower. Given that knowledge, it is obvious that now is not the time to reduce the pace of tree removals. It appears that the industry has been given a one year reprieve to take further corrective action. Ignoring that opportunity will add to the pain and hardship endured by the industry in the past several years. Further, worrying about what the competition may do is not going to cause the problem to disappear. The Washington apple industry has the capability to supply the best apple to the consumer and, at the same time, be the best service provider to the retailer, a combination of attributes that will maintain Washington's reputation as the premier apple growing area.

[THE SPREADSHEET](#)

For those who are interested in evaluating alternative scenarios, the spreadsheet can be found by clicking on THE SPREADSHEET link above. It is in Excel 97. You may download the workbook for your use.

This workbook contains a sheet for each variety and for the total estimates of production and acreage. The totals sheet also has graphs for each variety and for the total. Each graph contains a curve for the estimate and upper and lower bounds that are some adjustable percentage to reflect the variability that occurs in the crop from year to year.

The sheets are color coded. Green is used as a general background. Blue is used to indicate numbers that are generated by hidden formulas that account for the changes that occur from year to year. Yellow cells contain data that can be changed by the user.

The information that can be changed by the user includes starting acreage from the sources indicated above. The starting acreage from the traffic associations' surveys is set at one-half of the reported removals. The assumption was made that half of the removals occurred before the WASS survey was conducted and were covered in the WASS data.

Other information that can be changed by the user includes bin weight by variety, the conversion factor from field run to fresh and the number of trees per acre used to convert the tree data from Buckner's survey to acres.

The other crucial entry is the rate of change in acreage by variety each year. The percent change due to removal or planting will use the preceding year's acreage to calculate the change in acreage associated with each variety in the current year and is added or deducted from last year's acres.

Yields per acre can be set at the discretion of the user. However, once set, these yields are used for all years' calculations. The calculation of production also considers tree age. The yields use the year planted in column A as the key to which yield to use. The internal formulas reflect the aging of the trees over time and yields for those acres that pass 20 years of age during this decade are adjusted downward to the level indicated in the yield column, where there is a decline.