

# URBAN FORESTRY PRODUCTIVITY

by Philip A. Pierce

The Omaha Forestry Division is concerned with crews productivity as are all other phases of the green industry. We must contend with the high cost of inflation, and are faced with the additional burden of a spending lid. As Warren F. Purdy puts it: "An effective, smooth running, profitable business can only be achieved when management is aware of every aspect of the firm's operation. In order to attain this awareness, reliable useful information is necessary." Spurred by a review of the Forestry Division in 1975 it stated: "The progress report form, which gives the crews production, does not provide enough information to allow for efficient comparisons," we began the development of a computerized production reporting system.

The City of Omaha encompasses 92 square miles and has a population of 364,500. The Forestry Division has four trim crews, each equipped with a radio-controlled lift truck; dump trucks, hydraulic log loader, and a chipper as the task requires. Our five man nursery crew performs the greatest array of tasks and frequently operates as two separate crews.

Development of a computerized reporting system began in earnest in 1978. That summer the program was tested on a summer CETA program. Then on January 1, 1979, the Forestry Division as a whole converted over to the computerized system. During the development of the program, we were most interested in information that would be useful as a planning tool, but would also provide information for comparing crews to each other and to themselves over time.

**Data collection.** Several organizations use a modification of their time sheets to collect field data. Ulrich experienced that "the time sheet was relatively simple, very well accepted and surprisingly accurately completed by the foreman." Omaha's experience has been similar. Although we do not incorporate our field report with the time sheet, the production report is simple to fill out. However, a report that includes all "time" should be considered since the comparison of productive time to lost time categories, such as

sick leave and injured on duty, is valuable in controlling that lost time. The Omaha production reporting system only reports on the job time as recorded by the time clock.

The daily crew report requires a minimal amount of writing. This report contains cross checks for crew identification, date and location. The crew date, SBPO, maintenance code, number or DBH, manhour and chemical are loaded directly from these reports interactively and edited by our clerk. The SBPO notation categorizes work location by Streets, Boulevards, Parks and Other for our annual report.

A total of 42 maintenance codes are used for tasks associated with pruning and removal, nine maintenance codes for pest control to record method of application, the chemical, and quantity of pesticide used. Planting operations use five maintenance codes and 14 maintenance codes deal mostly with nursery operations. The last six maintenance codes deal with activities that are not directly productive tasks such as, training, inclement weather, meetings and equipment maintenance.

**Reports.** The output report accumulates summaries and calculates productivity on a work per man hour basis and work per man day basis. Monthly reports indicate a pattern of work productivity for a crew over time and allow comparisons between crews. The annual report helps establish standards and measurable goals for management by objectives. Some data from our year-end summary report will provide a picture of the information we are utilizing. As a unit, the Forestry Division spent 18% of its time on planting trees and associated new tree care, 36% of its time pruning woody ornamentals, 32% of its time on removal, while 14% was miscellaneous time.

Large tree removal (over 8" diameter) uses 27.5% of our tree crew's time. From our experience during the removal of Dutch elm diseased trees, we found that the average tree removed was just under 24" in diameter and that the best commercial operators removed these

trees at a rate of 1 tree per man per day. This rate of 24" per man day became our objective. Three of our trim crews reached this goal in 1979. Some obvious differences between commercial contract operations and our operation are that the contractor's time includes equipment breakdowns; our "removal" code does not. Contractors were not limited to a 40-hour work week and our removals include park trees as well as street trees.

Currently, our method of wood disposal is to dump waste wood at 4 locations during the winter months for the public to pick up as firewood. Cleanup of these four sites, plus debris from caretakers in large parks is all coded as "dump site cleanup." This dump site cleanup operation cost the Forestry Division 2,595 manhours in 1979.

Pruning maintenance codes for "fine pruning" of trees over 8" in diameter and "safety pruning" of trees over 8" in diameter were confused at the crew level. Therefore, in 1980 these two maintenance codes will become "complete pruning" and "partial pruning." Now if the tree is only elevated over a street, sidewalk or street light, it will be coded as "partial pruning" and when the entire tree is worked the maintenance code for "complete pruning" will be used. In addition, every time a tree is pruned, all dead wood over 3" in diameter will also be removed. Because of the tendency of crew foremen to use the safety pruning code combining safety pruning and fine pruning will reveal a more accurate picture of work accomplished.

The nursery crew has the widest range of tasks to perform including the operation of five holding nurseries. They utilized two Vermeer 44" tree spades and one Vermeer 66" tree spade to transplant 929 of these trees into permanent sites in 1979. Another 1,231 trees were planted as bare root and balled and burlap trees to permanent sites, while the holding nursery was only replenished with 463 liners.

In any operation there are times when your men cannot get into the field or have to do something other than ones primary task. We have designated six maintenance codes for these types of actions: training, inclement weather, accidents/injuries, meetings, equipment maintenance, other. These codes do not include time off work for any reason. An example of "accidents" would be the crew foreman's time used to take a man to the hospital and fill out accident reports. A total of 14.5% of our time in 1979 fell into this category.

The Omaha Forestry Division has generated a lot of data and is in the process of assimilating it. Monthly summaries allow us to look at seasonal variations within a crew as well as comparisons between crews. For example, crew 4's safety pruning is consistently over one tree (24" in diameter) per man day better than the other crews. We need to learn how crew 4 does it and retrain the other crews.

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