

HOW RECORDS CAN IMPROVE GRAFTING

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At Midwest Groundcovers we custom graft *Pinus*, *Picea*, and *Juniperus*. This discussion revolves around the side veneer and the side graft used on these plants. However, these ideas can be used in other forms of grafting and budding. The object of record keeping is to repeat a successful crop of grafts, or to improve upon a poor crop of grafts by identifying any actual or potential problems.

This paper is divided into two parts. The first is record keeping on the grafter and the second is record keeping on the plant material. Before starting, an action plan is given to all those involved with the grafting process. The plan explains the grafting schedules, how to prepare understocks, how to take a scion, how to make a graft, the cultural care of the graft, spray program, and how the "takes" will be measured. This eliminates any confusion and problems that might arise.

RECORDS ON THE GRAFTERS

The primary reason to keep records on the grafters is to see who can graft well. By recording the facts, personal feelings are eliminated. The idea that the best grafter is the person who has been with the nursery the longest, or who is the fastest, is no longer a valid point. It is important to determine the successful grafters because they should be the ones responsible for the grafting operation and instructing new employees on correct procedures.

Records the supervisor should keep include whether the grafter keeps a sharp and clean knife, how quickly the graft is actually made, and the handling of plant material during the grafting process. A person can make textbook perfect grafts, but have a low percentage live because of the amount of time involved to make the grafts. For example, an employee who cuts and recuts the understock, puts the scion in the understock, takes it out and fits it in again, while trying to get a perfect looking graft is allowing the cambial layers to dry out and die. The supervisor should observe how the employee handles the plant material during the grafting operation. Things to watch for include leaving the scions on the work table for extended periods of time, placing the finished grafts in the greenhouse properly, and if the heeling-in crew handled the plants with proper care to avoid jarring the scion loose.

Each grafter keeps a daily record (see Form #1). This consists of the cultivar, quantity grafted, and comments. In the comments section the employee makes notes, such as dry scions, understocks in poor shape, poor root development, and that the size of the scions and understocks do not match. This is used as a reference if problems are encountered.

A year ago, Midwest Groundcovers experienced a drop in percentage of good grafts made in the afternoon. This was determined by numbering the flats and then placing them on the bench in that order. With this information other work, such as scion collection or understock preparation, can be planned in the afternoon to avoid this poor production time.

RECORDS ON THE PLANT MATERIAL

The reason for keeping records on the plant material is to use this information to have the best possible material available for the grafting process. Types of records that are kept during scion collection include: when the scion was taken, whether an extremely cold or windy front was passing through, and if the air temperature was sufficiently warm to prevent damage when the scion was collected. Records that should be kept after the scion is collected include: aftercare, and length of time in cold storage. Each bag should have a label in it with the cultivar name, and the date collected so the scions are used in proper order.

The records on the understocks should include whether they are straight or curved, the diameter, presence of good color, when they were placed on bottom heat, and stage of root development at time of grafting. Comments are also made if something unusual happens, such as the heat going off in the greenhouse or the cooler not working.

Records are also made on the cultural care of the graft after it is placed on the bench and heeled in. Special notes are made if the heat fluctuated during the heeling-in process, or whether there was adequate moisture present, and at what temperature was the bench maintained. The exact heeling-in process should be recorded, in order to be aware of conditions as the graft heels.

By keeping records such as these if there should be a crop failure then the reason can be better determined or an outstanding crop can be duplicated. The successful grafters are identified so they can be responsible for the grafting process, and provide the best cultural care to the plant while it is heeling-in.

Record keeping should not take all day, but a few seconds at a time throughout the day can lead to improvements, save time and effort and increase your success.

FORM # 1 DAILY GRAFTING RECORD

NAME: _____

DATE	CULTIVAR	QUANTITY	COMMENTS

RALPH SHUGERT: With conifer scions, are you storing or using them quickly?

EDWARD CARPENTER: We try to use them quickly except if we see a real cold weather front is coming through. We try to use them within a week, but this is not always possible in the Chicago area.

RALPH SHUGERT: Thirty years ago a question was raised on frozen scion wood. How do you handle freshly-cut frozen scion or cutting wood.

EDWARD CARPENTER: If it is frozen we handle it as carefully as possible. We bring it into the cooler and gradually thaw it out.

RALPH SHUGERT: I notice that you are not using bottom heat with juniper grafts. Is that expedient or desirable?

EDWARD CARPENTER: We are using bottom heat and it seems to help.

JOERG LEISS: Do you cover the spruce grafts right up to the needles? I see a problem with that.

EDWARD CARPENTER: We cover both pine and spruce grafts.