

### The Costs and Impacts of Technology Transfer

The beginning of a new year is a good time to take a hard look at what you are doing and why you are doing it. Since my primary job is providing technology transfer (TT) to people who grow forest and conservation plants, I decided to review the various methods that I use to provide TT and assign some new priorities. In the process, I learned several new things and thought that I'd share some of them with you.

There are many options when it comes to providing TT, and I have listed them in a matrix for ease of comparison (Table 7). The first major distinction that I made is between "individual" and "group" contacts. The first category refers to one-on-one contacts where I am providing services to one person at a time. Because of my increased workload as National Nursery Specialist, some individual contacts such as nursery visits to provide TT will have to be a much lower priority.

Other individual TT methods including telephone inquiries, letters, FAXes, and E-mail will continue to receive high priority. The telephone has been a popular method of TT delivery for decades and is still a good way to provide one-on-one assistance. One of the drawbacks with telephone calls, however, is that they represent an interruption to the person you are calling. I don't know about you, but phone calls break my concentration and it always takes me some extra time to get back to what I was doing before the call.

Writing and answering letters and other correspondence has always been a big part of my job. I get mail from around the world requesting copies of publications or asking for information. Since I don't have a secretary, I write all my own correspondence and even print mailing labels. One of my latest triumphs has been learning how to print laser labels from the Forest Nursery Notes mailing list and I even know how to print the bar codes used by the US Postal Service. A few years ago, I didn't have to worry about mailing costs because they were considered part of overhead for which I just paid one overall fee. With government cost cutting, however, I now have to pay for all mailing and so I've done some cost comparisons. Mailing a 1 lb. (0.45 kg) package of publications by first class mail was costing me from \$3.00 to 15.00! By changing to library rate mailing, the same package costs only \$1.50 to \$3.00—a considerable savings.

FAXes are very popular with many of my correspondents, especially from foreign countries where ordinary mail is either slow or just unreliable. One interesting thing that I found out about FAXing is that computer

FAXes can be expensive. A hard copy FAX through a typical FAX machine costs me around 50.04 per page. Compare that to some types of computer FAXes which can cost around 50.75 per page with some servers like MCI mail. So, if you have to use a computer FAX, use software like WINFAX and you'll only pay for the long distance call.

E-mail is the newest addition to my daily load of correspondence, and I dutifully check my inbox several times a day. (Note the change of my E-mail address on inside cover or in Nursery Networks section). After looking into the costs of E-mail, I decided to change internet servers. MCI mail is fast and convenient but charges by both the number and length of the message and so my monthly E-mail costs were running from \$20 to \$50!! Changing to America-On-Line which has an unlimited monthly fee of \$19.95 including E-mail was a much more economical option.

We've all been bombarded with news of the World Wide Web (WWW) and how it is going to revolutionize information transfer. I'm not so sure about this, but we're following the trend and have established a SNTI (Seedlings, Nurseries and Tree Improvement) Home Page—see the Nursery Networks section for the URL. Economically, a WWW Home Page will be very cost effective because, once we pay the personnel costs to have the material uploaded, it will be available to anyone for 24 hours a day, 7 days a week. For someone who has a computer and subscribes to an internet server, they can access a wide variety of technical information for less than \$20 per month. My major question about TT efficiency over the WWW involves access. One article that I read said that only one-third of US households had computers and a survey of FNN subscribers is even more limited. Only 6.5% of FNN subscribers who filled out and returned their Literature Order Forms reported that they had access to the WWW. I suspect that this number is conservative and will undoubtedly increase, but it still poses some interesting questions about equatability of service.

So, you will be noticing some changes as we continue to evaluate the economics of our various TT services. I feel that information should be free to everyone and so find it irritating to have to compromise quality to save a few bucks, but I guess that's the way the world is going. If you have any suggestions on how we can be doing a better job, we'd sure appreciate hearing from you.

#### Source:

Landis, T.D. 1991. The Container Tree Nursery Manual - an experience in technology transfer. Combined Proceedings, The International Plant Propagators' Society 40: 151-154.

**Table 7. Comparison of different Technology Transfer (TT) methods**

TT Methods	Type	Program Impact		Effectiveness Period	Specialist Efficiency Ratio	New Priority based on Workload
	of Contact	Time	Cost			
Telephone Inquiries	Individual	Low	Low	Short-term	Low	High
Letters, FAXes, and E-mail	Individual	Low	Low	Short-term	Low	High
Nursery Visits	Individual	Medium	High	Short-term	Low	Low
Newsletters (FNN)	Group	Medium	Low	Short-term	High	High
Workshops	Group	Medium	Medium	Short-term	Medium	High
Conferences	Group	High	High	Short-term	Medium	Low
Proceedings	Group	High	Medium	Long-term	High	Medium
Journal Articles (TPN)	Group	Medium	Low	Long-term	High	Low
Technical Manuals (CTNM)	Group	High	High	Long-term	High	Medium
World Wide Web (WWW)	Group	Medium	Low	Long-term	High	Medium

\*= Specialist-to-User ratio, assuming that a ratio of one specialist to many users is most efficient.