

Table 1, continued

Question Number and Reply	Overall Farm/Sex Classification 621						ASA REGIONS 507								
	NON FARM			FARM			NE		NC		S		W		
	151	94	304	72	376	645	96	123	225	63	645	96	123	225	63
14. How do you feel about competition with female students in this course?	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
15. Do you feel that you should have priority over females in non-physical employment?	9	7	9	9	9	9	3	9	10	2	9	9	9	10	9
16. Can males compete with females in all fields of agronomic employment?	93	94	93	93	93	93	95	90	88	98	93	95	90	88	98
17. Can males compete with females in all fields of agricultural employment?	89	91	88	88	88	88	95	89	90	93	88	95	89	90	93
18. Are males more qualified than females for employment in fields of agronomy?	26	25	27	26	26	26	19	20	31	29	26	19	20	31	29
19. Should males receive specialized training in agronomy compared to females?	10	10	11	10	10	10	7	9	14	8	10	7	9	14	8
<b>Students with Farm Experience only</b>															
20. How do you feel about taking basic science courses (Chem., math., etc.) with students from an urban background?	4	4	4	4	4	4	5	0	4	5	4	5	0	4	5
21. How do you rate the need for a strong basic science background in helping your performance in the course?	34	34	34	34	34	34	34	37	20	40	34	37	20	40	27
22. How do you feel in taking this agronomy course with students with urban background?	1	1	1	1	1	1	1	0	1	2	1	0	1	2	0
<b>All Students</b>															
23. Is the question of farm vs. city background an important problem in job placement?	20	17	21	20	20	20	23	14	20	19	23	17	20	19	23
24. Is the question of male vs. female an important problem in job placement?	9	6	14	9	9	9	6	14	9	10	8	11	6	14	11
25. Are class sizes restricting students' opportunities to receive important individual aid e.g. field trips, etc.	44	47	47	44	44	44	41	42	61	37	46	39	61	37	46
26. How successful was this experience in supplementing your lack of farm or industry work experience?	45	63	60	45	45	45	63	30	43	50	44	67	30	43	50
27. Did you receive college credit for the internship?	60	60	60	60	60	60	39	25	36	42	40	33	39	25	36
28. Did you receive payment for your services?	65	67	100	65	65	65	62	50	86	67	53	89	62	50	86
29. Were you in residence near the internship and/or farm work experience area?	72	59	90	72	72	72	76	63	79	75	72	78	76	63	79
30. Does your department sponsor an organization which promotes the understanding of agronomy?	28	41	10	28	28	28	24	37	21	25	28	22	24	37	21

# Contemporary Forestry Dendrology Course

Ray R. Hicks, Jr.

Dendrology is a subject which is taught in more than 50 colleges and universities with forestry programs in the United States. Usually the course focuses on woody plant identification; however, recently reported deviations from this theme have opened a discussion regarding course content and teaching methods.

During the past nine years diagnosticians have appraised the health of dendrology teaching. It was found to be ailing, and later pronounced dead (Wiant 1968; Lanner 1969). A resurrection was proclaimed by Confal and Martin (1970) and an audio prosthesis prescribed by Fehner (1972). Recently two authors (Stettler 1976; Brown 1977) describe what could only be the second coming. The latter articles agree in proposing a reincarnation made viable by addition of major borrowings from other disciplines. Stettler suggested that teachers use the dendrology course as a forum for teaching forest

genetics, while Brown recommended that we emphasize ecology in dendrology lectures. No matter how "innovative" or "dynamic," these proposals cannot both be incorporated into subject matter universally recognized as a full course load. I submit that there is room for neither.

### Will The Real Dendrology Please Come Forward

The unifying theme of dendrology is tree identification and nomenclature. This is the meaning of the word, as accepted by the world's forestry organizations (Ford-Robertson 1971), and this is the role it fills in most forestry curricula. All the suggested new approaches recognize this, despite the tendency of some writers to stretch the field to cover essentially all of forestry. To best serve its basic purpose, dendrology should be supported and strengthened — not weakened or diluted.

The problems alluded to by Brown and Stettler are problems of entire curricula, the optimum interlocking of courses to form an educational whole. Drastic in-

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dependent changes in dendrology alone can hardly solve such problems - it could even aggravate them. We need to modernize forestry curricula at many schools, perhaps everywhere. As a forest geneticist, I feel an acute need for a required forest genetics course, but to incorporate it into dendrology would displace too much that is essential. Some overlap of subject matter may strengthen a curriculum, but excessive duplication is wasteful and undesirable.

The whole point seems to be one of perspective. In the context of a forestry curriculum, it seems obvious that tree identification must be the focus of dendrology. Other information is added to the course to support and enhance this objective. In fact, topics such as life history, silvical characteristics, and uses listed by Brown as comprising a "traditionally organized" dendrology course are among those which can be used to do this. Perhaps this is why the innovative dendrology teachers of the past chose those topics.

I am not suggesting that dendrology should become stagnant or that there is no room for innovative teaching. Memorization is unavoidable, but a truly innovative teacher finds ways to add interest and excitement to material that is potentially dull or monotonous. The instructor, without shortcutting the memory work, can help provide purpose with practical examples and ease the memorization with skillful organization of materials.

### **Dendrology Doesn't Have To Be Dull!**

Indeed, there are many innovations possible in the presentation of dendrology, including moderate doses of the suggested panaceas. Reorganization, consistent with the main objective of the course, can be helpful. Discreet introduction of illustrative material can add "tangibility" to the subject but should not dilute it. Forestry students relate to real things. Examples of human experiences, descriptions of habitat complexes, discussion of uses, or the evolutionary context of species can help add realism. There is almost limitless opportunity for innovation while retaining the tree identification perspective. Different methods of presenting materials open another array of possibilities, including the audio aids suggested by Fechner (1972).

Statements in recent articles on dendrology teaching - "in my opinion the traditional taxonomic approach to dendrology is inherently monotonous" (Brown 1977) and "traditionally, dendrology has (also) been one of the duller courses, emphasizing descriptive, encyclopedic knowledge" (Stettler, 1976) - prompted an anonymous questionnaire to solicit opinions of dendrology students at Stephen F. Austin State University. Two hundred eleven (mostly first-semester freshmen) students responded. One hundred eleven were questioned before mid-semester and the remaining 100 responded just prior to the end of the fall semester, 1977. There was very little difference in opinions expressed before and after mid-semester. Fifty-one percent found the lectures to be very interesting, 47 percent thought them average, and 2 percent called them dull. Laboratory, as expected, fared

somewhat better, corresponding percentages being 75, 22, and 3. Seventy-two percent felt they were getting much useful information, 27 percent indicated some, and only 1 percent said they were getting little. Cross-classification revealed that students whose attitude was that of timber manager were most favorable toward the course, with 63 percent classifying the lecture as very interesting and 88 percent indicating they were receiving much useful information. Least favorable were those classifying themselves as environmentalists but, even here, the corresponding percents were 45 and 66. Those classifying themselves as timber managers were most optimistic about their grades, while environmentalists expected lower grades than the other two groups.

These results do not necessarily prove that this course is unusually interesting or useful. The real proof can only be valid after the student's training has been put to the test of time and a job situation. I am confident, however, that the students taking this traditional dendrology course did not find it dull.

### **Did Dendrology Die or is it Being Buried Alive?**

If an instructor approaches a course with the premise that the subject matter is inherently monotonous or dull, the results will not likely be dynamic or interesting. Perhaps this is part of the problem with dendrology. Forestry needs a dendrology course emphasizing the "traditional" subject matter. I am convinced that such a course need not be dull or monotonous, and that radical changes in objectives are not needed or desirable. I think the primary objective of an ideal dendrology course should be to teach students **how** to identify important species of woody plants. To do so, we should help them learn **how** to be observant and **what** to observe, provide a "tangible" and meaningful frame of reference for the material presented, and encourage continued study of trees.

As secondary objectives, the course should endeavor to teach students about the classical taxonomic systems, and provide interest-building items of information on physiology, genetics, ecology, and uses of selected species.

The real challenge in teaching dendrology is not to re-make the course or change its objectives, but rather to make the course interesting, challenging, and informative. This can be done.

### **Literature Cited**

- Brown, K. M. 1977. Regional dendrology: an innovative approach to a traditional subject. *J. For.* 75:724-725.
- Confal, J. G. and C. R. Martin. 1970. There is no corpse: dendrology lives! *J. For.* 68:159.
- Fechner, G. H. 1972. The evolution of dendrology. *J. For.* 70:569.
- Ford-Robertson, F. C. (ed.) 1971. *Terminology of forest science, technology, practice and products*. Society of American Foresters. Washington, D.C. 349 p.
- Lanner, R. M. 1969. Further thoughts on dendrology: Can the corpse be resurrected? *J. For.* 68:875.
- Stettler, R. F. 1976. The role of the dendrology course in the teaching of genetics. *Silvae Genetica* 25(5-6):164-168.
- Wiant, H. V., Jr. 1968. Some thoughts on teaching dendrology. *J. For.* 66:556.