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VIEWPOINTS

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A Bachelors Degree: The Right Weapon in the Battle Against World Hunger?

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What can be done to alleviate hunger and malnutrition in the world? That is a large, complex question! The answers are political, social, religious, and horticultural. It is axiomatic that one of the best approaches to answering a big question is to break it down into a series of smaller questions that can be worked on. One smaller question is: How can we as horticulturalists and as a horticultural society make our most-effective contribution to solving the problem? The answer I propose is to increase our emphasis on undergraduate education.

As a society, and as individuals, our focus is on research first, graduate education second, and undergraduate education a distant third. Now, I am not saying that the above approach is wrong (though I do find it unfortunately unbalanced); obviously it has worked very well for *American* agriculture. But we are not discussing only American agriculture! What works for us is not necessarily going to work elsewhere—maybe it should, but it doesn't.

As currently constituted, horticultural education can be summarized by a schematic diagram (Fig. 1).

In our open, well-educated society, this model functions very nicely, consistently producing surpluses. The problem comes when we presume that it is the most efficient format to use in the "third world." I put the "third world" in quotes to emphasize that it is someone else's term, not mine. The first major problem with our educational model is that it is not universally applicable. Every country is different. The solutions that may work in an underdeveloped but stable country will not necessarily work in an underdeveloped and unstable country. Is the population homogenous, or divided along tribal or religious lines? Any number of other possible differences exist. The point is that while we cannot individualize a program for every student, we can increase our efficiency by producing students with the greatest flexibility. Inherent in our educational pyramid is the fact that the higher you go, the more focused you get. (There is a lot of truth in



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the old saying, "knowing more and more about less and less"')

It could be argued that there is nothing wrong with the narrowing of the focus, because everyone who goes on for an advanced degree already has a BS; hence, there is no loss in flexibility. The problem with that argument is that it presupposes that the flexibility (or shall we say a *practical* education in agriculture) was there to start with. All too often that is just not the case.

By and large, foreign educational systems are geared along classical lines. Students arrive here heavy on theory and light on practicality and experience. Our graduate programs are more interested in an applicant's chemistry grades rather than if they know what a "three-point hitch" is, or the equivalent in countries where tractors don't play a significant role in food production. Are American students much better-prepared than foreign students? Yes, somewhat, but

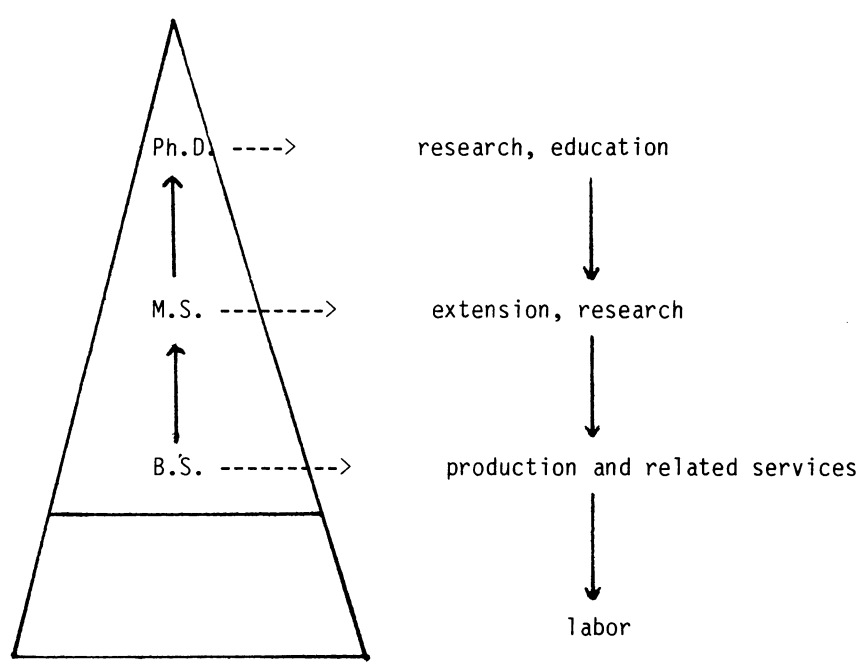


Fig. 1. Schematic flow diagram of horticulture education in the United States and the expected outcome at each level.

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are they enough better-prepared in practical knowledge to deal with actual on-farm problems in an underdeveloped country? Does your undergraduate program still function as if all agriculture majors were from the farm and only need to be taught the scientific side of agriculture to be finished products? Has your program moved toward the theoretical because it suits the interests and background of your faculty? Do you feel sure that one of your graduates, who had no previous on-farm experience, could manage a farm with a reasonable prospect of success? If the answer to the last question is less than an unqualified "yes", will an advanced degree give him or her more practical experience? Until we as a society and as individuals stop viewing undergraduate education as only a means to an end (a graduate degree) and not as an end (a well-trained agriculturalist) in itself, we are not really having the impact that we should. One final question: Do you hire faculty who will teach undergraduate classes their knowledge of production or of physiology?

At each step in our educational pyramid we have a fairly well-defined role that the person holding that degree plays. Hence, information developed by the researcher is passed through extension to the grower. In this country that system works rather well. But will it work elsewhere? In much of the world, the producers (of food, rather than export commodities) are not part of the pyramid. If there is no infrastructure, the researcher exists in a vacuum. Knowing this, how many foreign students choose not to return? How many of your bright PhDs have you helped find positions for so that "their talents wouldn't be wasted"?

A pyramid must be built from the base up. I am not saying that we discontinue graduate education. What I am proposing is that we increase our emphasis on the undergraduate—that we make sure we give him/her an education that actually prepares people to produce food. How can we do this? First of all, we need to make sure that our agricultural curricula have a balance of theory and practice. Second, we should increase the number of foreign undergraduates in our programs and then not raid the best of them for our graduate programs. Third, our overseas programs always should contain a strong educational component aimed at developing the infrastructure mentioned earlier. Finally, I think we should encourage our institutions to develop more flexible study programs where foreign undergraduate students are concerned. I am not talking about watered-down programs, but ones that are more tailored to their needs and the realities of their countries and cultures. ■

ASHS PUBLICATIONS MANUAL; ABBREVIATION FOR METRIC TON

My congratulations to the authors of the *ASHS Publications Manual*. I expect the manual is the most complete and up-to-date reference of its kind available. It should be required reading of all authors submitting manuscripts to ASHS publications, could very well serve as a guide to writing theses, and would be helpful to anyone writing in English.

I hope that authors will buy and use the manual religiously. It is unfortunate that so much editorial time is spent in making changes that are necessary because authors have not followed specified formats, or have used incorrect abbreviations, cited references incorrectly, or made other small errors.

At \$5, the *ASHS Publications Manual* is a bargain—one small error could cost that in retyping costs.

Despite my hearty approval of the manual, I have 3 reservations:

1) If ASHS is going to be "metricated" and use the *Système International d'Unités* (SI), the abbreviations should also be SI; e.g., t for metric ton (tonne), not MT.

2) Should the manual be set up so that revised sections could be inserted to replace out-of-date sections?

3) My major concern is with the section about figures. Although there is considerable information in the manual about tables, the author has to look up the reference to Maxie and Edwards (1) to find examples of figures. Shouldn't the paper by Maxie and Edwards be included as an appendix? After all, tables can be changed easily by retyping; figures may cost a lot initially and are expensive and difficult to revise. The method of presenting data in Maxie and Edwards is also incorrect because it is nonmetric and virgules are used!

Literature Cited

1. Maxie, E.C. and D. Edwards. 1971. Preparing graphic materials for publication. *Hort-Science* 6:327, 574.

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I would like to call attention to a discrepancy in the *ASHS Publications Manual* regarding the abbreviation to be used for metric ton. The manual suggests MT. I am told that this is incorrect because in the SI system the abbreviation T is reserved for the tesla, a unit of magnetic flux density. The correct SI abbreviation for metric ton (tonne) is t.

I note on page 19 of the *ASHS Publications Manual* that "ASHS will convert eventually to SI units and authors are encouraged to use them." Since metric tons per hectare is a yield term used frequently by horticulturists, perhaps ASHS should convert to the SI unit abbreviation now.

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• Editor's reply

Effective immediately, the abbreviation to be used in ASHS publications for metric ton (tonne) is t (not MT). Authors and readers are encouraged to submit other suggested changes or discrepancies to the Publications Dept. for study by the ASHS Publications Committee.

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