

THE DEGREE PROGRAMME OF HORTICULTURE AT WAGENINGEN AGRICULTURAL UNIVERSITY

J. Berghoef
Department of Horticulture
Wageningen Agricultural University
Haagsteeg 3
6708 PM Wageningen
The Netherlands

Abstract

The Wageningen Agricultural University offers the only possibility for studying horticulture at an university in the Netherlands. The four-year programme is taken by about 25 students yearly. All horticultural students have to do two Majors. Management of the degree programme is done by a committee in which students have equal votes. Inquiries of students and alumni are important tools for composing a programme of high quality and adapted to the demands of the employment field.

Introduction

In the Netherlands, horticultural (and agricultural) education falls into two main divisions: a. The secondary education for pupils of 12 to about 18 years, consisting of junior and senior vocational education; b. The higher education with two main branches: the higher vocational education institutes (HBO) and Wageningen Agricultural University (WAU). The study at the HBO is basically practical-training orientated, although nowadays it is becoming more theoretical. Still, there remain important differences compared to the study at the WAU. Main differences are found in the level of abstraction, depth, theoretical backgrounds and the capacity to analyze and to work with complex problems and/or situations. On the other hand practical training regarding the cultivation of plants is comparatively less at WAU.

Both graduates from the university and vocational levels easily find a place on the labour market as the Dutch horticultural industry is expanding rapidly. The production value increased from some f 2.4 billion in 1970 to f 12 billion in 1990, with an export value in that year of almost f 15 billion.

Nurseries and organizations, e.g. auctions, largely increased in size, causing a greater demand for executives and plant scientists at an academic level.

2. General outline of degree programmes at WAU

The four-year degree programmes are split into two parts: One preliminary year (propaedeutic year) and three years for the degree programme ('Doctoraal'), leading to the 'ingenieur'-degree (Ir.) which is comparable with the MSc-degree of, for example, British universities.

A study-year totals 1680 study-load hours (slh), which equals 42 weeks of study, split up in three terms. In general about one third of the slh is by direct contact of student and lecturer, the rest is self-study, preparation for examination a.s.o.

Students receive a governmentally allowance and grant for a maximum of 6 years (since 1991 5 years). Most students are studying for 5 - 6 years, mostly because they take more courses than is compulsory, on average they do 6100 slh instead of 5040 slh.

Since three years a special two-year degree programme for HBO-graduates exists.

3. Students

Yearly about 25 (in 1991 30) students entail the degree programme of Horticulture, of which about 25% are HBO-graduates for the special two-year degree programme. About 50% of the students pass the preliminary year after 1 year and 80% after 2 years. Of these students about 90% are graduated after a total study-time of 6 years.

4. The educational programme

4.1. Objectives and final assignments

The degree programme of Horticulture educates students for functions in or on behalf of the Horticultural industry for which an academic training is thought to be obligatory or useful. This requires that graduates have:

1. Broad and in-depth knowledge of the horticultural industry and its developments, of crop characteristics and of cultural techniques.
2. Wide knowledge of the most important basic sciences (e.g. Botany, Plant protection, Soil science, Economy/Sociology, Physics/Technics)
3. Broad and in-depth knowledge in one or several of the above mentioned sciences for a second specialisation.
4. Academic characteristics like: ability for analytical and critical observation, understanding of the coherence of sciences as used in the field of horticulture, ability to work independently and in a team, ability to distinguish between main and side topics, ability for problem-analysis.

4.2 The propaedeutic year

The first two terms of the propaedeutic year are similar for all Plant Sciences (degree programmes of Agriculture, Plant breeding, Plant pathology and Horticulture) whereas by the third term the individual degree programmes are solely emphasized. Mainly basic sciences like Mathematics, Chemistry, Introduction to statistics, Cell-biology a.s.o. are presented. The propaedeutic year has also a selective and motivating function. The motivating function is mainly found in the third term in which specific horticultural courses are given (Joziassse, 1992).

4.3 The Horticultural Degree Programme

All horticultural students have to do compulsory courses (core programme) to a total of 1000 slh, consisting of basic sciences like Statistics, Computer science, Physics, Plant physiology and horticultural courses.

Thereafter two main specializations are possible: Crop Science (crop-oriented) and Social-Economics in Horticulture (oriented at nursery and/or organization level).

Within each specialization there are compulsory courses and courses to choose out of a restrictive assortment. Core and courses in the specialization make two-third of the degree programme. One-third (1680 slh) is free choice out of all courses at WAU.

To meet for the final assignment of students to have a broad and in-depth understanding of horticulture, as well in the horticultural crops, their products and in the horticultural industry, courses of the Department of Horticulture constitute about one-third of the degree programme.

These courses are described by Joziassse (1992). An important task for the students is to do a Major of 520 - 840 slh, being an experimental research and writing a thesis.

The assignment of a broad and in-depth training in one of the basic sciences, is met by a number of courses and by the compulsory second Major required for every horticultural student. This Major can be chosen out of a restrictive assortment, different for the two specializations. About half of the students choose a plant-related subject (fig. 1). Plant science stands for a variety of subjects e.g. taxonomy, plant-cytology a.s.o.

All horticultural students are required to write a literature review on a free choice subject of at least 200 slh. The larger part of the used literature must exist from international referred publications. This literature review may be done on a horticultural subject, as well as on any other subjects from WAU departments.

5. The educational process

In the first two 'doctoraal' years lectures entail roughly 50% of the teaching methods used. Classes have groups ranging from 10 - 50 students, courses shared with many other degree programmes may have groups over 100 students. Comprehensive practical courses take about 20%, the rest is self-study, practical period a.s.o.

In the last year the Majors take up almost the complete study-load, students are generally individually guided by faculty members in this period.

Examination in a course can be done three times a year (during scheduled examination periods), there is no formal limitation to the number of times students can take these examinations.

Examinations of the horticultural majors takes place, after an oral presentation of the thesis by the student. The examination consists of a discussion on the thesis for the duration of about one hour with the supervising faculty member and the department professor.

6. The organization and management of education

6.1 Educational policy

Educational policy for horticulture is determined by the degree programme committee within the framework of WAU. The committee has ten members: five are faculty members and five are students. The student counsellor attends the meetings of the committee as an adviser.

The most important task of the committee is to create a balanced degree programme of high quality within the regulated framework. This has been done in 1989 for the last time. Yearly adaptations to new situations and insights take place, based on course evaluations and the experience of the student counsellor. Furthermore, a four-yearly evaluation of the degree programme as a whole and the five-yearly inquiry of alumni give important information.

6.2 Student counsellor

The student counsellor has an important role in the degree programme. Before the start of the study, during recruitment period, he provides general information on the programme, study-behaviour and labour market perspectives. During the study he can keep an eye on study progress by on line connection with computer of the Administration Office of Student Affairs where all examination results are registered. As students are given wide choices (restrictive assortment, free choice) to compose their individual programme, the student counsellor has an important task in advising them to do this adequately.

The student counsellor is a faculty member of the department of horticulture and spends about 25% of his time to this task. It is felt important that next to this task he has the normal duties of lecturing and doing research and by that have contacts outside the university. In this way he is best aware of demands of the employment field.

7. Internal quality control

Quality control is executed at different levels. Individual courses are evaluated at least every three years by student-inquiries. The degree programme as a whole is evaluated every four years by an extensive inquiry of the older students. Finally every five years all alumni of the WAU get an inquiry, asking for indications in particular on scored objectives and assignments in relation to the field of employment.

By this extensive way, the committee gets a fairly good insight in the weak and strong points of the programme. This has proven to be a very useful tool in adjusting the programme.

8. The graduates

Of almost all alumni it is known where they have found employment. The alumni-organization of the WAU (NILI) yearly publishes an address-list, next to the inquiry every five years. Graduates of Horticulture find employment in a wide variety of functions (fig 2.). This is a result of the structure of the Dutch horticultural industry with its many different branches and their own demands in the chain from producer to consumer. Moreover, due to the fast growth of the industry, many institutions, cooperations and companies have grown to a size at which they feel the need to expand the staff with employee's with an academic training. In particular by the combination of sound horticultural knowledge with the required specialization our graduates easily find their way on the employment market. With an overall unemployment level of almost 5% this is less than the 8% unemployment of the other plant sciences.

9. Conclusions

By offering students a degree programme as roughly outlined above, the programme committee has the strong feeling that graduates are well equipped to tackle future problems in horticulture as environment, energy and mechanization as well as marketing and logistics. Each student is able to compose his individual programme, due to the limited and free choices, based on the knowledge of basic sciences (neither of the students have the same programme).

The idea is that they are not saddled with learning facts and figures but taught to: distinguish between main and side topics, have a bird's-eye view, be able to perform problem-analysis, think creatively and constructively a.s.o., in short to demonstrate the skills of an academic education.

10. References

This paper is based on an extensive self-study prepared by the degree programme committee in 1992 to serve as a basis for an international visiting committee which is going to evaluate the programme in November 1992.

On request the self-study is available after this date.

Joziase, M.: 1992. To be a grower or to be a hortonomist (this volume).

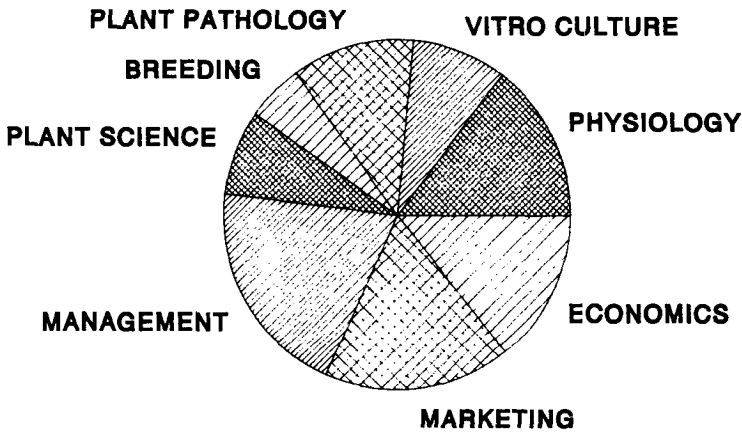


Figure 1. Second majors mostly chosen by the horticultural students. (Plant science stands for a variety of subjects e.g. taxonomy, plant-cytology a.s.o.)

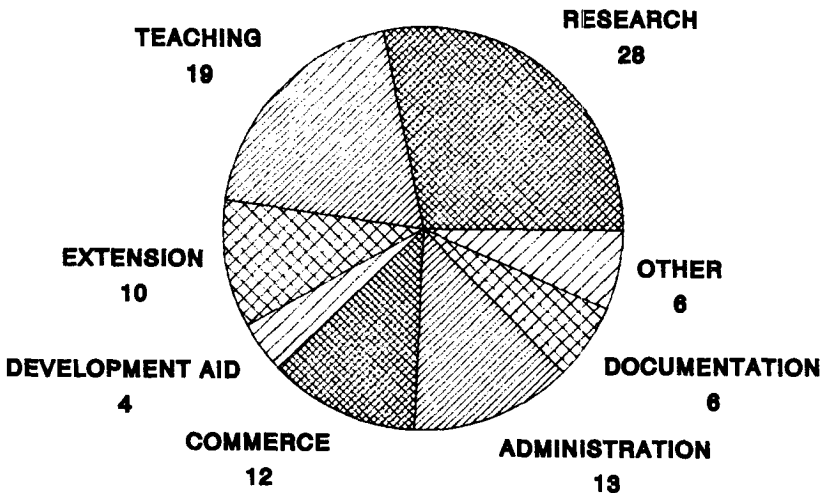


Figure 2. Most important employment fields of horticultural graduates