FINAL REPORT OF THE EXTERNAL JOINT INTERNATIONAL ACCREDITATION

University: China Agricultural University

Program: Horticulture

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I. Major Profile

As the start of Chinese horticultural education, the Horticulture Program of China Agricultural University can date back to the year 1923, when the Agricultural Science Department of the former Imperial University of Peking was changed to be the Horticulture Department of the National Beijing Agricultural University founded in the same year. In 1949, Beijing Agricultural University (BAU) was founded by merging of three colleges of agriculture, namely College of Agriculture of Peking University, College of Agriculture of Tsinghua University and College of Agriculture of North China University. The Horticulture Department was set up in the new university. In 1952, when colleges and departments of national higher education institutes were restructured, the original Horticulture Department and its program were adjusted to the Horticulture Department. In June 1999, China Agricultural University took the lead in setting up a horticultural college nationwide.

There are 55 full-time faculty members for the program, including 26 professors, 24 associate professors, 1 national outstanding teacher, 1 first-class or second class talent for the national "New Century Talents Project", 2 award winners of National Outstanding Youth Fund and 5 scientists at the post of national modern industry technology system. The program has 1 national quality course, 1 quality course of Beijing Municipality and 4 provincial or ministerial planned textbooks. A total of 30 acres of on-campus practical teaching bases have been built together with other programs related to plant production. A plant production experimental teaching center is shared within these programs. There are 2 talent training bases for national agricultural science and education cooperation and 20 off-campus practical internship and training bases. Five provincial or ministerial key labs (engineering centers) have been built, with sufficient research funds available.

The horticulture discipline, on which the Horticulture Program is based, is among the first authorized centers for the first-level doctoral degree in horticulture of China. Fruit tree science of the second-level discipline is a national key discipline. The horticulture program is among the first "211 project" key disciplines, the first

authorized doctoral stations and mobile post-doctoral stations. The program was incorporated in 2014 into the National Excellent Agriculture and Forestry Talent Education and Training Program.

II. Site-visit and Feature Highlights

In this accreditation process, the expert group referred to the concept of "student-centered, outcome-based, continuous improvement" and closely following "5 degrees", "7+1 primary indexes" and "30 secondary indexes" in their work.

Before site-visiting, these ERP carefully reviewed the program self-evaluation report, the status data analysis report, read some case study materials and supporting materials, drafted the university visit plan and made precedent interviews with 26 employers and 40 graduates.

During the site-visiting, the ERP visited the Life Science Experimental Teaching Center, the Plant Production Experimental Teaching Center, the Plant Production Cognitive Internship Base, visited the Chemical Experimental Teaching Center, the Student Innovation Lab, the library, student dormitories, Xiaotangshan Modern Agricultural Technology Demonstration Park and other facilities and bases. They inspected the professional faculty office environment and tested the network operation conditions. They also observed 21 lectures covering 19 courses, reviewed 563 copies of examination papers for 21 courses, 108 graduation theses and 79 internship reports; interviewed university leaders of 3 person-times, members of 8 person-times from 6 functional departments, students of 62 person-times, teachers of 28 person-times and college leaders and teaching officers of 25 person-times, etc. Also, they reviewed and verified a batch of additional supporting materials and data.

Established in 1923, the Horticulture Program of China Agricultural University is one of the oldest horticultural departments in China. It has a fine traditional of attaching importance to undergraduate talent training. The program inherits the university motto of "Solution to hard life and cultivation of talents" as well as the college spirit of "Beautiful gardens decorate China, great skills help to support livelihood", regards talent training by morality training as the fundamental task, pays attention to talent

training culture building and makes important contributions in training high-quality professional talents, serving the modernization of horticulture industry and the development of agriculture and rural areas.

1. The training objectives of the Horticulture Program are in line with the university's orientation of "building a world-class university with Chinese and agricultural characteristics" and overall talent training objectives of training top-notch innovative talents and industry leading talents, and also consistent with the national strategic requirements and modernized development needs of horticulture modernization. They can better reflect the characteristic strength and industry leadership of the discipline and the program. The core indexes in the requirements for graduation of the program are reasonable and ensure the linkage to the training objectives.
2. The new version of the talent training plan enhances the integration and connection of general education and professional education, theoretical teaching and experimental teaching, classroom teaching and extracurricular activities, as well as undergraduate and postgraduate education. Based on the OBE concept, the plan revises the curriculum syllabus and ensures classroom teaching quality through specialized core courses taught by professors, promotion of case study teaching and development of small class teaching, etc. The plan explores and initially builds the "3+3" talent training mode with the training of "three-in-one" industry leading talents as the goal and emphasizes the integration of production and teaching. Practical achievements have been made in collaborative talent training.
3. The university attaches great importance to full-time faculty team building and optimizes academic qualifications, education backgrounds and other structures; adheres to the tutorship system for youth faculty, builds a mutual help platform, regularly holds basic skills contests for youth faculty and improves their teaching and research capabilities. Seven curriculum teaching teams have been set up. The collective lesson preparation system for teaching teams is implemented. Faculty members are motivated to invest in undergraduate teaching. Teachers are dedicated

to their teaching work and have excellent morality and teaching styles.

4. The university strengthens the building of the teaching expense guarantee system so as to ensure the steady growth of professional teaching expenses. The program has advanced instruments and equipment as well as rich book and information resources. Labs are managed and operated in an orderly and efficient way. Various types of research platforms are opened to all undergraduates. The evident result of teaching by research has been achieved. What is commendable is that in the case of tight university-running land, the university retains and maximizes the use of plant production cognitive practice bases to facilitate students' internship practice in surrounding areas.
5. A complete teaching quality assurance system at the university and college levels has been built. The quality management system for all teaching session has been improved. The regular teaching process monitoring mechanism runs effectively. The effect of supervision by the visit group is obvious. Self-evaluation and external evaluation of the program are conducted on a regular basis, which plays a positive role in guaranteeing and improving teaching quality.
6. There is a sound student development service system, a support team and other support. Students' physical and mental health and academic guidance are highlighted. The "three-in-one" head teacher management mode led by professors is distinctive. Students have a strong sense of belongingness and acquisition. The graduates have a solid foundation, and high overall accomplishments. Thus, they are highly qualified in work and wins great satisfaction from employers.

In addition, the university regards the China-Russia joint accreditation as an important opportunity to build and promote the international development of undergraduate education. Relevant departments work together; colleges and departments are widely organized; teachers and students actively participate in. They get prepared for the accreditation work in a solid and orderly manner, further sort the idea of program running, and plan program building and reform. Great achievements have been made in aspects of "promoting development by means of evaluation, promoting reform by means of evaluation and promoting management by means of

evaluation". The confidence and determination of China Agricultural University, as a leader of agricultural universities, to implement the spirit of national education conference and run a first-class undergraduate program is shown. All these have left a deep impression to the ERP.

III. Compliance of the External Review Outcomes with Standards

STANDARD 1. Educational Objectives

1.1 Orientations of educational objectives: consistent with mission of the institution, meet the needs of the society, contribute to the national and regional development strategies, embody the international vision, and reflect the features of being forward-looking and leading.
1.2 Clear, measurable and attainable educational objectives which can reflect the expectation of graduates, the features and strengths of the program.
1.3 A mechanism that evaluates educational objectives regularly and amends based on the evaluation results timely.

Achievements:

The training objectives of the Horticulture Program identified are in line with the university's orientation of "building a world-class university with Chinese and agricultural characteristics" and overall talent training objectives of training top-notch innovative talents and industry leading talents, and also consistent with the national strategic requirements and modernized development needs of horticulture modernization. They can better reflect the characteristic strength and industry leadership of the discipline and the program. With output as orientation, reverse design and forward construction are applied to establish the preliminary associations of graduation requirements, curriculum systems and the teaching syllabus with training objectives. The training objective evaluation and improvement mechanism has been established. The talent training plan is revised at appropriate time so as to improve the fitness of training objectives for effect.

Challenges and deficits:

(1) Although basic elements are included in the training objectives set for the Horticulture Program, the content of occupational characteristics and service orientation is not complete. There is no clear definition or refined description of the connotation, accomplishment characteristics and training requirements for industry

leading talents. It is not enough for the training objectives to show the differential development needs of students, which affects the step-by-step building peripheral support systems to a specific extent.

(2) It was believed by the employers and graduates interviewed that the university emphasized more on the teaching of students' theoretical knowledge and training of research ability; the curriculum system and teaching content were not much fit for social demands, which led to weak hands-on ability and ability to solve practical problems; it was a little long for their adaptation to their jobs, which was obvious for application-oriented talents that directly go to industry for jobs.

(3) During the process of training plan revision and demonstration, the surveys on employers and alumni were not sufficiently covered; few industry and enterprise experts participated in the surveys; and some feedback comments collected were not well absorbed.

Recommendations:

(1) The program should further enhance learning and training, increase understanding towards the certification concept and standards, optimize and perfect program training objectives in accordance with the program development plan, the teaching and education development trend and the law of students' growth, and identify the characteristic connotations of "industry leading talents" and requirements for knowledge, ability and accomplishments.

(2) In combination with social demands and the situation of students' employment and career development, this program should properly refine and categorize training objectives and incorporate highly practical guiding curriculum modules in the training plan, especially in the curriculum system so as to satisfy students' demands for personalized training while implementing training objectives during the teaching process.

(3) The program should promote the building of the follow-up and feedback mechanism for employers and graduates, optimize the evaluation plan, expand evaluation channels, innovate evaluation methods, refine evaluation content and regard the comments, suggestions and evaluation results collected as the basis for training objective revision and the formulation

of categorized talent training plan, so as to ensure the intercommunication, deep coupling and co-frequency resonance between training objectives and social demand.

STANDARD 2. Graduate Outcomes

2.1 Possession of the humanity, the scientific spirit, the professionalism and the sense of social responsibility. Understand the nation, the society, and the people. Practice of core socialist values.
2.2 An ability to understand and apply solid foundation, specialized knowledge and necessary research methods. Understand knowledge of the latest development and trends of the program and the relevant fields;
2.3 Critical thinking, innovative spirits and competence. An ability to identify, analyze, question and evaluate the phenomena and the problems concerning the programs and the relevant fields. An ability to express individual opinions.
2.4 Complex problem solving. An ability to solve the complex the complex problems, to conduct comprehensive analyses and researches in the programs and to propose relevant measures or solutions;
2.5 Modern tool usage. An ability to apply modern IT methods and tools properly in solving practical problems.
2.6 Communication skills. An ability to make effective oral and written communication with the peers and the public.
2.7 Teamwork and cooperation. An ability to get along harmoniously and to work cooperatively with team members. An ability to play contributive roles in team as either a member or a leader;
2.8 International horizons and awareness. Understand international dynamics and care of global issues. An ability to know and respect the differences and diversities of world cultures.
2.9 Lifelong learning. An ability to carry out the self-management and the independent learning. An ability to adapt to the society and to achieve the individual sustainable development by carrying out continuously learning.

Achievements:

The nine accreditation standards are basically covered in the graduation requirements formulated for the program. A great support is provided to the training objectives. Main

indexes are well linked to theoretical teaching, practical teaching and extracurricular activities. The teaching syllabus based on OBE has been initially established. The curriculum objectives are linked to the indexes of graduation requirements, which are refined and implemented in the teaching content, teaching methods and examinations, with a great fitness.

Challenges and deficits:

(1) According to the items of graduation outcomes, the nine secondary indexes basically follow the text content of general standard graduation requirements. Insufficient refinement and deviating self-portrait are not conducive to the highlighting of program characteristics, and brings out insufficient understanding and decomposition of connotations of some indexes. Also, the precision of measurement is not high, which will affect the practice and fitness of graduation outcomes.

(2) There is a gap in the matching between the curriculum setting corresponding to the indexes such as “critical thinking”, “ability to solve complex problems”, “communication and expression ability” and “international vision” and classroom teaching and extracurricular activities. Some content is arranged arbitrarily.

(3) It was found from the interview that the teaching officers and teachers of the college did not have a deep understanding of or understood differently the graduation requirements and connotations of professional development. Also, most students interviewed did not understand much about the professional talent training plan and the talent training quality criteria to be reached after their graduation.

Recommendations:

(1) The program should be based on core concepts and standards of certification and on the professional education foundation and talent training objectives of the program. It should try to formulate the graduation requirements that cover typical program characteristics, adapt to students’ differential development and closely link social needs while covering general standards in width. The self-measurement using one’s own ruler should be highlighted. The evaluation development of the program should move from extension to connotation.

(2) The program should clearly understand the logical relationship among standard items of program accreditation, design graduation requirements according to training objectives and reasonably decompose and refine indexes so as to ensure that the graduation requirements form a comprehensive support for the talent orientation, professional accomplishments, professional skills and expected achievements and other key aspects in the training objectives.

(3) The program should rearrange the relationship of support for all indexes according to the support matrix and the fitness evaluation result related to the graduation requirements, make a key in-depth analysis of indexes with low fitness, adjust or delete the teaching links with a weak correlation and low support strength, rebuild the graduation requirement support system with an explicit logical relationship, and refine the graduation requirements in the teaching process.

(4) With the dual support of university audit evaluation and China- Russia joint certification for the Horticulture Program, the program should continue to publicize and interpret the graduation requirements and realization paths for the program, clarify the responsibilities and requirement of teaching, learning and management and promote participants to achieve the graduation requirements in a targeted way.

STANDARD 3. Curriculum

3.1 Consideration of the requirements of national qualification framework descriptors in the study program. Availability of senior staff to core courses and Teaching Assistant to compulsory courses.
3.2 Availability of a documented assurance system providing continuous enhancement of classroom teaching with student development. Graduate outcomes Implementation of program syllabus for learning outcomes. Effectiveness of teaching procedures for student involvement, with dialogue, critique and discussion. Implementation of examinations and tests for assessment of learning outcomes.
3.3 A practical-oriented teaching system featuring academe-industry cooperation. Hands-on training with executive departments, research institutions and industrial departments for improvement of practical ability, innovation and entrepreneurship and the ability to solve practical problems with knowledge learned.
3.4 Regular evaluation and corresponding revision of the curriculum. Involvement of employers and graduates during curriculum reviewing and revision.

Achievements:

The new version of the talent training plan enhances the integration of general education and professional education, theoretical teaching and experimental teaching, classroom teaching and extracurricular activities, as well as undergraduate and postgraduate education. Based on the OBE concept, the plan revises the curriculum syllabus and ensures classroom teaching quality through specialized core courses taught by professors, promotion of case study teaching and development of small class teaching, etc. The plan explores and initially builds the “3+3” talent training mode with the training of “three-in-one” industry leading talents as the goal and emphasizes the integration of production and teaching. Practical achievements have been made in collaborative talent training.

Challenges and deficits:

(1) There is a lack of elaborate design and differentiated arrangements for the curriculum

system. There is little space for students to select their specialized curriculum modules provided and curriculum resources. For example, the main crops of fruit, vegetables and flowers involved in the Horticulture Program can directly meet the needs of enterprises in the industry but the exiting curriculum system is not fully clustered in the three directions, which is easy to make students become insufficient in depth despite their wide knowledge. For example, in the professional education courses of 80.5 credits, there are only 5 credits related to the requirements for specialized elective courses (6.2%). The space for students' selection is not big enough, which is not suitable for personalized development of students.

(2) For the general education module, there are few resources for the cultural education courses at both levels of the university and the college. The exploration and utilization of the characteristic resources such as Chinese agricultural civilization and farming culture are not enough, which is not conducive to the effective achievement of relevant training objectives and graduation requirements.

(3) The advance of some applied courses and the timeliness of teaching content are obviously insufficient, and the courses are disjointed from modern horticultural production featured by intensification, mechanization, informatization and intelligence. In interviews and questionnaires, employers and graduates had some comments and complaints towards this aspect.

(4) Most classroom teaching only stays at the "mono" level of chalk and talk. It is difficult for the teaching mode to stimulate the enthusiasm and passion of students for actively learning. Some teachers have a better control over the class and can create an active classroom atmosphere, but there is still much room for their improvement in in-deep interaction and inspiring teaching. In general, there is still a gap between the classroom teaching and the accreditation requirements, including "effectively increasing the participation of students and forming a classroom atmosphere of dialogue, critique and discussion".

(5) The depth of the experimental class is not enough, especially there are many verification experiments. While, the open and design experiments are insufficient. There is a lack of in-depth internship into industry enterprises. The practical courses in the university are mainly taught by teachers and students have insufficient time of hands-on practice.

Recommendations:

(1) The program should strengthen research and argumentation in the revision of the new round of talent training plan, reorganize and optimize the curriculum structure with graduation requirements combined according to the connotation of training objectives and the idea of categorized talent training, and establish a differentiated curriculum module with different degrees, implement it in the teaching syllabus, curriculum objectives, teaching methods and assessments. In addition, it is necessary to appropriately increase the number of curriculum resources, formulate the course selection guidance methods for students, highlight the student-centered concept, and guide students to select their courses independently and enhance their sense of satisfaction.

(2) The program should further balance the relationship between general education and professional education, the connection between specialized compulsory courses and elective courses; focus on solving the problems that curriculum design and teaching content are not compatible with the humanistic quality education, and the development of modern agriculture and horticultural production. In combined with the results of employer and graduate surveys, the program should update and upgrade the courses that cannot effectively meet the needs of horticultural production, operation, management, research, etc. If necessary, the program should make more efforts to develop new teaching materials and make a good use of on-campus multidisciplinary advantages such as agricultural engineering and agricultural economy management and some off-campus resources, and strengthen relevant curriculum building and practical teaching links.

(3) Starting from the specialized core curriculum, the program should further promote the small class teaching and tutoring system. For some unqualified courses, the teaching mode of “large class teaching, small class discussion” can be applied to create an interactive environment for both teachers and students. At the same time, the university and the college should promulgate more effective measures to substantially facilitate the reform of classroom teaching methods and assessment methods. Teachers should be encouraged to make full use of modern educational techniques and online open courses and actively conduct problem-based, flip-up, case study and project-based teaching and strengthen the guidance on students' learning methods, so as to form a more vivid and efficient classroom atmosphere, further

increase the support of classroom teaching for talent training, and lay a solid foundation for comprehensively improving teaching quality.

(4) The program should, by grasping the opportunity of the experimental teaching reform from the overall level of the university, carefully analyse the science and rationality of the existing experimental curriculum, syllabus and teaching content, abandon the experiments that are simply repetitive, introduce the faculty’s research frontier into students’ experimental teaching, focus on improving the degree of exploration and challenge for experimental topics, stimulate students' active thinking and innovative vitality, train students' hands-on ability and ability to solve complex problems, so as to respond to the strong appeal of employers and graduates.

(5) In the case that the existing class hours are already full, the program should consider to allocate some of the on-campus internship courses to off-campus bases and enterprises (using abundant alumni and the resources of their enterprises), invite the experts with solid backgrounds in the industry to offer guidance on the effective linkage between on-campus teaching and industry needs, and help students to shift their thinking and knowledge when at the university, prepare various skills for their future work and enhance their competitiveness and development potential upon graduation.

STANDARD 4. Faculty

4.1 Faculty with sufficient amount and rational structure. Qualification and competent of the teaching staff for undergraduate teaching with good teaching and researching experiences. Capacity building and development of teaching staff meet the needs of student development.
4.2 Regulations and measures to encourage teachers' commitment to undergraduate teaching, and guarantee sufficient time and effort in classroom teaching and student tutoring. Availability of professors engaging in undergraduate teaching.
4.3 Two level systems for career development and professional advancement for teachers. Participation of the teachers in joint international projects, internships home and abroad, and regular innovative teaching methods and advanced technologies.
4.4 Availability and use of clear, transparent and objective criteria for self-evaluation, student evaluation, peer evaluation, supervision evaluation, and other evaluation activities annually. A system of assets allocation and promotion linked to evaluation results.
4.5 Research activity of the teaching staff including program development, curricula and test books building, teaching method and technology improvement conducted by a teaching monitoring committee; implementation of research results in the academic process.

Achievements:

The university attaches great importance to full-time faculty team building and optimizes academic qualifications, education background and other structures; adheres to the tutorship system for youth faculty, builds a platform for mutual assistance, regularly holds basic skills contests for youth faculty and improves their teaching and research capabilities. Seven curriculum teaching teams have been set up. The collective lesson preparation system for teaching teams is implemented. Faculty members are motivated to invest in undergraduate teaching. Teachers are dedicated to their teaching work and have excellent morality and teaching styles.

Challenges and deficits:

(1) The number of teachers is relatively small. Although the student-teacher ratio of the

program is 6:1, this figure does not consider the number of graduate students and international students. There is still some gap from the program to most identical majors in agricultural universities directly under the ministry in terms of the faculty scale.

(2) The faculty structure is unreasonable. First, the youth teachers under 35 years old have a share of 21.8% and the proportion of teachers under 45 years old is not high, with "discontinuation" concerns. Second, the teachers with horticultural education backgrounds have a low share and teachers of the program will face great challenges in teaching professional practice courses. Third, the percentage of experimental technicians returning to work is too high (50%), and the experimental teaching support level is not high enough. Fourth, the high-end and leading talents are insufficient, and the core competition of disciplines is not strong, which naturally affects the industry's achievement of leading undergraduate talent training objectives.

(3) The space for teachers' office and research is tight. There is still a lack of system design and overall promotion for the development of faculty at both university and college levels. The training projects and content are fragmental, and their pertinence and effectiveness are not strong enough.

(4) There are few teaching reform projects that are participated in by professional faculty. There are few teaching results, especially high-level papers and textbooks, which are in contrast with the large-scale and high-quality scientific research results. It reflects the emphasis of faculty on research than teaching.

Recommendations:

(1) The university and the college should start from the practical needs of program development and the development of first-class undergraduate education, focus on the medium- and long-term goals of promoting the building of first-class disciplines, improving the research level, serving the thriving modern horticulture industry and adding vigor to the rural revitalization strategy, practically increase the efforts to build the faculty team of the horticulture discipline and program, regard the horticulture background as basic conditions for teacher enrollment, highlight the introduction of high-level talents and outstanding youth teachers, and expand the size of the faculty team and experimental technicians so as to meet

the teaching and student guidance needs.

(2) The university should expand the campus area or strengthen the intensive use of campus space, improve the working environment of faculty members, increase faculty's sense of well-being, identification and loyalty to career; build and improve the functions of faculty development service institutions, expand and optimize faculty training program so as to further enhance the professional development ability and the overall teaching and research level and lay a solid foundation for achieving the goal of building an internationally advanced and domestic first-class horticultural science and technology innovation center and an innovative horticultural talent training base.

(3) It is suggested that the university should strengthen the top-level design, further improve the relevant institutional arrangements and long-term mechanisms for inspiring teachers' investment in teaching, and increase the proportion of teaching contributions in performance allocation, professional title evaluation, teaching rewards and evaluation, to stimulate teachers' teaching enthusiasm and creativity. It should also solve the problem of highlighting a discipline than a program at a certain level, integrate the first-class undergraduate education and first-class program development into the university's "double first-rated" plan, and lay a solid foundation for promoting the excellent development of horticulture and other programs, training more top-notch talents and accelerating the construction of the world-class university.

STANDARD 5. Teaching and Learning Resources

5.1 Effective use of systems and measures to guarantee adequate and annually increased funds for program teaching. Availability of sufficient funds for student practicum and graduation thesis (design) so as to meeting the needs of teaching.
5.2 Availability of sufficient leading teaching facilities, abundant book resources and up-to-date teaching information technology in accordance with the demands of students' learning and teachers' teaching. Availability of management, maintenance, update and sharing mechanism for convenient use for teachers and students. Availability and accessibility of research labs open to undergraduates
5.3 Availability of extensive social resources, stable and sufficient practicum and training sites to provide long-lasting and effective support and guarantee students' hands-on practice, innovation and entrepreneurship training.

Achievements:

The university strengthens the building of the teaching expense guarantee system so as to ensure the steady growth of professional teaching expenses. The program has advanced instruments and equipment as well as rich book and information resources. Labs are managed and operated in an orderly and efficient way. Various types of research platforms are opened to all undergraduates. The result of teaching by research has been achieved. What is commendable is that in the case of tight university-running land, the university retains and maximizes the use of plant production cognitive practice bases to facilitate students' internship practice in surrounding areas.

Challenges and deficits:

(1) The structure of teaching expenses is not reasonable enough. The total amount of program expenses allocated is quite high, mainly due to the special investments such as condition development. However, the expense for undergraduate teaching per student (1,467 Yuan) is obviously insufficient, far lower than the normal data of "985 project" universities in 2017 (RMB 7,896.82). There remains the issue of highlighting hardware development rather

than operational support.

(2) There is a gap between the building of teaching laboratories and that of practice bases. The teaching laboratory owned by the program is small in size and backward in equipment. The shared Life Science Experimental Teaching Center and the Plant Production Experimental Teaching Center operate in too many experimental hours and under overload conditions. It is difficult for these centers to satisfy normal teaching needs. The internship base in the college is small and the teaching service function is generally weak. There are insufficient off-campus internship training bases, which mainly serve research, training and academic research. There is a lack of internship and practical training space related to industrialization. And no enough guidance is provided to the students who will go to the front lines of enterprises and grassroots organizations.

Recommendations:

(1) The university should strengthen the building of the teaching expense management system and the performance evaluation system, further optimize the investment structure of teaching expenses, prioritize in increasing the investment in daily teaching expenses, and ensure efficient operation of teaching organization, management and maintenance and other aspects. Also, the university should increase the investment in practical teaching expenses based on the needs of research universities for talent training, and provide more strong support for students' experiments, internships and other practical activities.

(2) It is necessary for the university to continue building new experimental teaching centers, and to allocate special areas to prioritize in meeting the teaching needs of the horticulture Program. The program should strengthen the upgrading and rebuilding of its teaching labs and work together to make up for the insufficiency of experimental teaching. It should also carry out overall planning of on-campus and off-campus teaching bases, comprehensively promote the building of the internship and practical training platform with accurate positioning, reasonable layouts, sufficient size and additional functions, and play the role of cooperation between industry, university and research institutes, develop the in-depth cooperation with agricultural enterprises, research institutes and industry parks, and provide more powerful support to improve students' practical ability.

(3) The program should link itself to the application-oriented talents training requirements, improve teaching service functions of on-campus and off-campus bases such as production practice, operation, management, sales, circulation, strengthen the building of facilities such as mechanized, automated, information facilities and IoT that are compatible with the development of modern horticulture, enhance students' hands-on skills and their ability to analyse and solve practical production problems.

STANDARD 6. Quality Assurance

6.1 Availability and effectiveness of a well-structured teaching quality assurance system at both levels of schools and university With clearly specified objectives and tasks, complete mechanism, and clearly allocated responsibilities to specific personnel.
6.2 Use of clearly defined quality criteria in all teaching process with regular monitoring. Effectiveness of procedures for self-evaluation and periodic review of a study program.
6.3 Availability of IT technology for collection and comprehensive analysis of relevant quality information. Availability and effectiveness of the analysis result for continuous improvement of study program and support the development of quality culture seeking for excellence.

Achievements:

A complete teaching quality assurance system at the university and college levels has been built. The quality management system for all teaching links has been improved. The regular teaching process monitoring mechanism runs effectively. The effect of supervision by the visit group is obvious. Self-evaluation and external evaluation of the program are conducted on a regular basis, which plays a positive role in guaranteeing and improving teaching quality.

Challenges and deficits:

(1) The teaching quality criteria and system building are lagging behind, and the standardization, fineness and measurability of some quality criteria are not strong enough. It was found when reviewing examination papers that some were of low quality; teachers gave an arbitrary judgment; the examination paper analysis was simple; and the graduation paper review and the internship report were substandard. The reason is that the quality criteria of some teaching links are general. Lack of thinking at the practical level leads to the inability of teachers and students to follow, resulting in large freedom and arbitrariness.

(2) The external quality assurance and feedback mechanism for the program is not sound enough. The teaching quality evaluation method is relatively simple. It mainly focuses on the

evaluation of students at the university. It lacks systematic design and effective use in evaluation of graduates, employers and the public. It is difficult to comprehensively reflect the problems and deficiencies in teaching.

Recommendations:

(1) The university should strengthen the research on quality criteria and grasp the connotation requirements, learn from the relevant experience of universities, conduct a major investigation on the existing quality criteria, verify the rationality, advancement and feasibility of each criterion item by item, solicit comments from front-line teachers and students, actively rectify the problems that reflect prominent problems so as to ensure that the teaching process and effects are effectively monitored.

(2) The university should hold the comprehensive application of the multi-dimensional evaluation concept, notice the combination of result evaluation and formative evaluation and of direct evaluation and the indirect evaluation on the method, and the combination of short-term evaluation and long-term evaluation on time, and mainly strengthen the communication with stakeholders, and incorporate the evaluation from students, graduates, the university and employers, independent evaluation as well as third-party evaluation into the current internal evaluation system.

STANDARD 7. Student Development

7.1 Student development Systematic regulations at the recruiting and selection of excellent applicants. Availability and effectiveness of rules and regulations for teaching administration and student development, which consider needs of diverse groups of students.
7.2 Systematic and effective guidance and service to support students' progression covering mental tutoring, academic instruction, career consultation and entrepreneurship incentive.
7.3 Attainment of the expected graduate outcomes. Satisfaction of formative and summative assessment, including learning experience, learning outcomes, personal development and employment and satisfaction of employers.

Achievements:

There are a relatively sound student development service system, support team and other supports. Students' physical and mental health and academic guidance are highlighted. The "three-in-one" head teacher management mode led by professors is distinctive. Students have a strong sense of belongingness and acquisition. The graduates have a solid foundation, simple working styles, and high overall accomplishments. Thus, they are highly qualified in work and wins great satisfaction from employers.

Challenges and deficits:

(1) The quality of undergraduate resources is at the average level, and the first -choice rate is low (24.18%). Among the 41 enrolling majors and programs in the college, the program ranks among the last (34^{th}).

(2) Horticulture is a traditionally competitive program of the university. The students that flow out of the program account for about 26.7%. The fact reflects the gap of program connotation development and teaching reform and is consistent with the external influence of the program according to the feedback from graduates.

(3) The guidance services for some students are weak. The students' satisfaction with their study, employment and entrepreneurship and career guidance work is low. The fact is confirmed in the interviews with graduates and employers. As market situation changes faster

and faster, students' practical ability and adaptability to the workplace are obviously insufficient, resulting in the lack of the development of students working in enterprises.

Recommendations:

(1) Further increasing the enrollment and publicity planning efforts of the program. The university should fully exploit and demonstrate the characteristics and strength of the Horticulture Program, highlight the close relationship between horticultural science and food security, environmental decoration, human nutrition and health, and increase farmers' income, highlight the unique advantages of professional talent training quality, employment and further study, and reduce the bias and concerns of students and parents about the Horticulture Program, and increase the rate of application for the program.

(2) The university should deepen the reform at the supply side of the program, build a mechanism for joint development of disciplines and majors, exploit the resources of the disciplines, research and funds, etc., create competitive hardware and software resources for the program, highlight program characteristics, enrich program connotations; further promote interdisciplinary cross and integration, use modern biotechnology, information technology and engineering technology to transform and uplift the program, release its potential, and increase the vitality of the program education.

(3) Further optimizing the student training and guidance service system. The university should improve the academic, employment, entrepreneurship and career development guidance services for students, further strengthen the training links such as practice and innovation, and strive to mobilize and stimulate the internal drive for students' self-development. Also, it is necessary to strengthen the classified and training and guidance. In particular, the university should attach great importance to the development needs of students that will move directly to enterprises, and truly train the high-quality research talents that get engaged in professional areas and also entrepreneurial talents and management elites who can meet the needs of related enterprises in the future.

STANDARD 8. Program characteristics

Achievements:

The Horticulture Program of China Agricultural University is one of the oldest horticulture departments in China. It has excellent teaching and learning styles that have been passed down from generation to generation. A lot of experience and modes of teaching development and reform have been accumulated since the adoption of reform and opening-up in China. According to the goals of “building a world-class university with Chinese and agricultural characteristics” proposed by Chairman Xi Jinping, when inspecting the university, the university has made its explorations in the new era and formed a relative distinctive college-running characteristics after long-term accumulation, development and innovation. They are mainly reflected in the following aspects.

(1) The Horticulture Program inherits the fine tradition of college running for nearly a century, regards undergraduate teaching and talent training as its fundamental tasks, enjoys a sound teaching style and rigorous learning style, and has a noble culture of "solving the hardships of the people's livelihood", an excellent culture featuring "cultivating talents in the world", the beautiful pursuit that "beautiful gardens decorate China", and the responsibility that "great skills help to support livelihood" (this is the spiritual driving force to promote the reform and sustainable development of the program).

(2) The program exploits the strong college-running strength and outstanding research advantages and uses the advanced teaching and research platforms and abundant research expenses to achieve the promotion of teaching and studying by research. A research-oriented undergraduate education and bachelor-master-doctor training system of the Horticulture Program has been built. Students' sense and ability of innovation have been increased. And a large number of outstanding reserve talents have been sent to famous universities and research institutions at home and abroad (this paragraph should be the main features and highlights of the program).

(3) The program is exploring and advancing the reform of its training modes. It has initially built the “3+3” talent training model aiming at training the leading talents in the “three-in-one” industry. The integration of production and education is emphasized in

curriculum system setting and practical education. Great achievements have been made in talent training through collaboration. (This paragraph is a key solution to achieve speeding-up, build a first-class program, and train top-notch talents).

Challenges and deficits:

(1) After years of exploration, practice and bold innovation, the university has formed a "3+3" talent training mode, and proposed that the teaching system should cover the industrial chain; the training method should highlight the integration of science and education; and the orientation of college running should reflect the three characteristics of college running. According to the self-evaluation report, the first one has had a specific practical basis to rely on; the second one is the main advantage of the program; and the third is the shortcoming and also the direction of efforts. However, according to the site visit, the three characteristics mostly stay at the slogan level and the stage of minor rectification of the original work system. There is a lack of a systematic planning and long-term layout, and effective implementation measures. The gap is obvious, especially in the international aspect. It is required that the college and the program should make the problem a top priority.

(2) The training objectives of the leading talents in the horticulture program determine the fact that the program should be competitive and also be based on foundation. The students of this program have a relatively strong theoretical foundation and the outstanding scientific research capability. However, the lack of industrial practice and the incompatibility with the horticultural modernization needs should be highly recognized, and efforts should be made in the design, assembly and effective implementation of the practical teaching links. At the same time, we must focus on the frontiers of the program, highlight the industry trends, and maintain the training objectives, plans and curriculum systems updated. In addition, the program teachers have strong research ability, enjoy the advantage of converting research resources into high-quality teaching resources, and have the solid practice of scientific research to promote teaching. However, the lack of systematic design and institutional arrangements for the organic integration of teaching and research is not conducive to the long-term development of this feature. Teachers and teaching officers should strengthen their thinking and work planning in this regard.