

# FINAL REPORT OF THE EXTERNAL JOINT INTERNATIONAL ACCREDITATION

University: China Agricultural University

Program: Plant Protection

Date of Site Visit: 4-7 Dec 2018

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# Expert Group Site Visit Report

## I. Major Profile

Since its establishment till now, the Plant Protection Program of China Agricultural University has had a history of 113 years. It boasts a long history, profound cultural heritage, a great number of masters and talents, as well as permanently rich faculty resources. Currently, there are 37 professors, 33 associate professors and 10 national, provincial or ministerial talents including national teaching masters, Yangtze River scholars and distinguished youths, who offer courses of the program. In the university, there are 2 key labs and engineering research centers under the Ministry of Agriculture and Beijing Municipality. The university is a national “innovative pilot zone of the compound and top-notch innovative plant production talent training mode”. The teaching team of general entomology here is a national excellent teaching team. More than 20 teaching and research bases have been built in more than 10 regions of China. In the past four years, the program has undertaken 493 scientific research projects, including 113 national ones, with an annual average fund of RMB 55 million allocated in place; won more than 20 national science and technology progress awards and provincial or ministerial awards, 75 national invention patents and more than 560 SCI papers published in the capacity of the first author.

This program adheres to the philosophy of integrating science and education, equally focusing on the theory and practice, being based in China and having the whole world in view, and trains students in terms of knowledge and ability in all aspects. For more than a decade, it has trained a large number of academic backbones and industry leaders throughout China. Currently, it recruits more than 120 undergraduates, more than 150 master’s degree postgraduates and over 60 doctoral degree postgraduates. In recent years, the employment rate of the program has remained at 95% or above. In 2017, the further study rate of students reached 69.33%. Students of the program mainly get jobs in the agriculture, forestry, animal husbandry, fishery, scientific research and technical service industries, including scientific research institutes, colleges and universities, plant protection stations at all levels and other

public institutions; entry-exit inspection and quarantine bureaus, agricultural bureaus and other government authorities; Bayer, Dow Agrosiences, COFCO and other enterprises.

## **II. Site Visit and Overall Impression**

(Make a brief description of experts' site visit and evaluate the overall conditions of the program using five degrees)

Before visiting the university, five Chinese members of the expert group carefully reviewed the self-evaluation report on the Plant Protection Program, the analysis report of teaching status data and other materials, put forward the issues that experts highlighted and drafted the site visit plan. After entering the university, the expert group strictly complied with the undergraduate program certification criteria for regular higher education institutes (Level III), adhered to problem orientation, followed the work requirements of "one-excellence, two-highlight and three-improvement" and conducted work in strict accordance with 5 degrees, 7+1 primary indicators and 30 secondary indicators. During the two and half days of site visit, the expert team inspected relevant teaching infrastructure of the university; supplemented and reviewed relevant data; observed 14 lectures; reviewed 1,813 copies of examination papers for 29 courses and 76 graduation theses; and interviewed students and teachers respectively for 73 and 33 person-times, university leaders and heads of related functional departments for 7 person-times, 9 school leaders and managers. They also interviewed 19 employers and 28 alumni representatives by email, telephone and questionnaire. The expert group visited three experimental teaching centers and internship bases in the university. The overall impression of the expert team is as follows:

China Agricultural University is the origin of modern agricultural higher education in China. With a history of 113 years, the university has remained the leader among Chinese agricultural higher education institutes and led the development of agricultural higher education in the country. When it comes to the origin, the Plant Protection School and the university were born together and have been following the same direction. Till now, there have emerged plenty of teaching masters and fruitful results have been achieved. The discipline of Plant Protection has its solid foundation, outstanding advantages and distinctive features, making its ranking among the top all the time. It is a national first-class key discipline and also a national double first-rated discipline. Nowadays, a complete undergraduate, master and doctoral talent training

system has been built. For long, the Plant Protection Program has always attached great importance to undergraduate talent training, highlighted teaching culture construction, and actively promoted talent training mode innovation and reform. It has formed distinctive operational characteristics and gained a good social reputation and great influence.

The goal of the program proposed, i.e. “training top-notch innovative talents and industry leaders”, is highly consistent with the university’s talent training objectives. The talent training plan can be revised in a timely manner and advance with the times. Talent training has always served the national development strategy and met the talent needs in the national social and economic development. Thus, both talent training objectives and training effect enjoy a high fitness.

The program has sufficient faculty members and a reasonable faculty structure. The professional competence and overall qualification of faculty are high. Remarkable achievements have been made in teaching and research team building. The morality and teaching styles of faculty are passed down from mouth to mouth. The “four-in-one” mode of talent training by team characterized by the full-member tutorship system and the system of excellent professors as head teachers has been built for the program of the school. The mode has rebuilt a new teacher-student relationship, enhanced the interaction between teachers and students, promoted the teaching and talent training by research in turn, and increased students’ endogenous motivation for active and independent study and innovative consciousness and ability.

The program follows the principles of “balanced general and program education”, “overall arrangement of graduate and undergraduate education” and “combination of theory and practice, classroom teaching and extracurricular activities, innovation and entrepreneurship”. The teaching system characterized by “two systems, three levels and modularization” can better meet students’ demands for diversified and personalized development, with good supportability and fitness. The school attaches great importance to the construction of core specialized courses, the introduction and publication of translated foreign excellent specialized textbooks as well as online and offline course development, which is good experience worthy of attention and promotion. However, there are also obvious problems in the specialized course system such as the weakened IT education course and weakened comprehensive practice ability training for

students.

The program has advanced teaching instruments and equipment, rich library information and other software resources. All kinds of teaching and research platforms are open to undergraduates and provide great support to teaching resources. Also, the university enhances building of the teaching expenditure support system so as to ensure stable expenditure of program teaching, which increases year by year. However, for a double first-rated university, the expenditure for students' comprehensive practical teaching is obviously insufficient and should be further increased.

At both school and university levels, a relatively complete teaching quality assurance system has been built; and the quality criteria, evaluation methods and basis have been formulated and introduced. The teaching work is advanced in a stable and orderly manner. The school carries out self-evaluation and external evaluation on the program, gradually improves teaching quality and creates an atmosphere of teaching quality culture. However, the teaching links and the consultation for and feedback from graduate alumni and employers are not in place and need to be further improved.

### 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.

#### 1. Achievements:

In terms of talent training, the university is targeted on training top-notch innovative and industry-leading talents, to obtain the all-round development in moral, intellectual, physical and artistic aspects and have a solid foundation of humanities and natural sciences, solid specialized knowledge and practical skills as well as innovative spirit and ability. The training objectives of the Plant Protection Program propose clear requirements for students' ability and accomplishments. Its objectives of training top-notch innovative talents are highly consistent with the university's orientation of building a world-class university and talent training objectives and conform to the needs for professional plant protection talents in the national social and economic development. The requirements for general education, professional education, innovation spirit and self-learning ability are also forward-looking and guiding. There is a complete system for regular evaluation of training objectives and the results of relevant data are scientific and reasonable. The problems reflected can be gradually improved through the revision of the talent training plan. The training objectives are described in an explicit and detailed manner. They are both measurable and achievable.

#### 2. Challenges and deficits:

There are mainly two aspects. First, no enough industry and enterprise experts and graduate alumni participated in the formulation of talent training plan when determining the talent training objectives. The survey showed that among the employers and graduate alumni of the program recommended by the program to experts, 80% to 90% said they had not

participated in the objective orientation of the talent training plan. University students, especially senior students, rarely indicated their participation in the work. Second, the top-level design of “industry leading talents” training is quite good. However, by checking the curriculum system configuration and practical teaching link arrangement as well as industry backgrounds and experiences (0) of full-time faculty members (82) and reviewing the graduation theses (76) and examination papers for specialized courses (9), it proves that the attention and process arrangement of the program for talent training are not reflected.

### **3. Recommendations:**

(1) The program should attach great importance to the investigation on the market demands for plant protection professionals and to the comments and suggestions of industry authorities, large- and medium-sized enterprise experts and distinguished graduate alumni, segment the market demands for talents, conduct appropriate design of the training objectives and paths as well as teaching and training links, etc. for industry leading talents. If necessary, relevant teaching “projects” may be designed accordingly.

(2) The program should enhance the training of full-time teachers in terms of practice in industry enterprises and makes institutionalized design and arrangements; vigorously introduce the teachers with practical experience in industry, especially those with backgrounds and experiences in international enterprises of the industry.

(3) The program should pay high attention to and strength the joint talent training with industry authorities and large-scale enterprises; make sincere and pioneering efforts to collaborate in developing talents and set examples for similar programs of China.

## 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.

### 1. Achievements:

This program is broken down into 28 indexes according to 9 graduation requirements. The specific talent training ability and accomplishments of the program are formed as effective support. In-depth discussions were made on the following aspects: Cultural heritage of “solving

the difficulties in people's livelihood, training the talents of the world", feelings towards "three rural issues", combination of personal development and national major strategic needs, acting areas of innovative thinking and practical ability (healthy crop production, bio-security, food security, animal and plant quarantine, environmental safety and sustainable agricultural development), specific content of modern information technology related to this program (Internet+, big data, intelligent plant protection, expert identification system), specific content of teamwork awareness and organization ability (division of labor and cooperation, acting as leaders or important roles). These discussions show characteristics of the university and this program. The corresponding support for training objectives has formed. The unique "four-in-one" talent training mode makes the student-centered and quality-oriented philosophy implemented.

## **2. Challenges and deficits:**

(1) Weakened training of students' comprehensive professional practical ability. It can be found from the percentage of credits in professional teaching practice (low), comprehensive graduation internship of students (insufficient) as well as combination of graduation paper topic selection and production (too little), etc. that the program has weakened the training of students' practical ability. The view was recognized by teachers and students during the interview. The school and the university are suggested to make improvements as soon as possible in terms of policy and system design, practice base building and internship expenses support, etc.

(2) There are obvious problems with the setting and offering of IT courses. The number of credits for computer courses is reduced from 6 to 2 credits and the courses are elective. According to the selection of computer courses by students, among 30 students in a class, only one selected the advanced Python; more than 25 selected Fundamentals of Computer; and about 80% of graduates only obtained the certificate of National Computer Rank Examination Rank II. It is shown from the questionnaire on students of higher grades regarding plant protection information technology that 100% students were not aware of plant protection information technology. It indicates that graduates cannot respond to the IT challenges in their future career. 77.8% of graduates and students also suggested that the university should enhance the teaching of IT courses.

### **3. Recommendations:**

(1) Improving practical teaching resources. The university should work together with enterprises in building the Zhuozhou Experimental Farm, with the university contributing resources, enterprises providing capital and government formulating policies, so as to build the Agricultural Silicon Valley of North China or a new innovation and entrepreneurship platform for agricultural science and technology that integrates scientific research and development, achievement transformation, internship and practical training, technological exchange, corporate headquarters, business incubation, agricultural exhibition, processing and trade. The university should also pursue the balance between educational public welfare and business investment and explore a market-oriented path for the construction and operation of pilot farms for the agricultural university in accordance with the "three rural issues" related policies including specialty towns and rural complex.

(2) It is suggested that the program should increase the requirements for credits of computer courses, add computer and IT application cases in specialized course teaching, enhance plant protection information technology teaching and improve students' information technology skills and accomplishments.

### **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.

#### **1. Achievements:**

Based on the curriculum system proposed in the talent training objectives, curriculum matrix analysis has been made on the nine requirements for graduates in the program. A curriculum topology map has been made and the support, guarantee and achievement of talent training objectives have been reviewed. The time sequence and level requirements for curriculum systems, teaching links, classroom teaching and extracurricular activities, online and offline, as well as learning of students in high and low grades. The integrated development and overall effect of the teaching and research teams formed by teachers have been highlighted. There is good experience that is worthy of referring to in the experimental curriculum project innovation reform and comprehensive offering, utilization of teaching and space resources as well as talent training by the faculty team. Particularly, the "four-in-one" talent training by the team with the all-member tutorship system and the system of excellent professors as head teachers has played a positive role in facilitating teaching by scientific research in turn and the conversion of technological resources into teaching resources. Resources support has been

provided for students' individualized development.

## **2. Challenges and deficits:**

The industry-university-research collaborative talent training mechanism implemented in this program is not perfect enough. No practical teaching has been performed with industry departments. The off-campus practice bases are still idle. Students are mainly developed in research and innovation ability but not sufficiently trained in the practice and entrepreneurship ability to solve practical problems in combination with national, social and economic needs. Similar to training objectives, the revision of the curriculum system is still a closed-loop discussing consensus among experts of the university. And few comments and suggestions are absorbed from employers and graduates.

## **3. Recommendations:**

(1) The percentage of practical teaching credits should be increased in the talent training plan, to about 30%. The credits of graduation thesis should also be increased, to 8~10 credits. A joint talent training mechanism should be built together with industry authorities and large-scale enterprises. Teachers and students should be provided with access to comprehensive professional practice in long time periods in industries or enterprises.

(2) The requirements for compulsory credits of computer courses for students should be increased. The plant protection information technology courses should be incorporated, such as mobile internet, IoT, artificial intelligence, big data, sensing technology and pattern recognition. The application case teaching should be highlighted.

## 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.

### 1. Achievements:

The program enjoys strong academic support. Faculty members are great in overall accomplishments and have high teaching ability and academic level. The age and professional title structure of faculty is reasonable. Youth teachers have a great potential for development. Sound award and punishment measures have been taken to ensure professors teach courses for undergraduates. The faculty training and development system is rather perfect. The existing teaching evaluation mechanism has been seriously implemented and been linked to professional titles and promotion. According to the results of interview with faculty and undergraduates as well as observing lectures, faculty members of this program have a deep feeling towards students and undergraduate teaching. They have invested a lot of enthusiasm and efforts, with a good reputation in morality and teaching styles.

### 2. Challenges and deficits:

(1) The faculty team building cannot meet the needs of training leading talents in the

industry. There are no double-qualified members and members with corporate background in the faculty team. At both the university and the school, the channel for introducing talents is too narrow and there are no sufficient experimental members. Teachers assume only a few teaching and research projects at low levels and published not many teaching and research papers as well as textbooks. The sole linkage of teaching evaluation to promotion towards professional titles is insufficient in science and rationality.

(2) The university has taken measures to motivate faculty members to invest in undergraduate teaching, which proves to be poor in effect. The existing evaluation systems of the university and the school, especially orientation in promotion and performance bonus, are obviously characterized by "more emphasis on research, less emphasis on teaching". Teachers' teaching quality does not play a big role in the performance allocation and promotion of the university.

### **3. Recommendations:**

(1) The university and the school should formulate the policies and systems to support faculty to practice in Chinese and international enterprises of the industry. Youth and middle-aged faculty should be selected to assume posts, continue their study or receive training in large-sized enterprises to rich their experience. The external employment policies and management methods for adjunct teachers should be formulated and a group of enterprise technicians and enterprise executives should be invited to work as adjunct faculty at the university.

(2) Both the university and the school should further promote the policies that encourage faculty to invest time and energy in teaching tasks and caring for and guiding students, and get rid of the policy orientation of emphasizing research rather than teaching.

## 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.

### 1. Achievements:

The teaching expenses are sufficient and can be effectively invested into undergraduate teaching. And the daily operational expenses of teaching in the previous five years have increased by 5% each year. Teaching facilities as well as teaching and research equipment are sufficient in quality and high in grade. The rich book resources can satisfy teaching needs. The library of the school has a total area of 21,160 m<sup>2</sup> and offers 2,774 seats. There are a total number of 2,245,600 books. More than 1,500 types of Chinese periodicals, over 360 foreign language periodicals, 230 Chinese and foreign literature databases, as well as 4,045,300 electronic literature resources are ordered each year. A literature support system that highlights agricultural science, biological science and agricultural engineering literature has been built. The tutorship system and head teacher system implemented in the program are well received by faculty and students. They play a good role in promoting teachers to invest in teaching, combining technology and teaching, teaching by research in turn and making research labs open to undergraduates.

Four bases, including Shangzhuang Experimental Station, Zhuozhou Farm, Quzhou Experimental Station and Plant Production Teaching Center, can be used by students of the Plant Protection School for professional internship.

## **2. Challenges and deficits:**

(1) Tables and chairs in the classrooms of the university are old and fixed arrangements of tables and chairs are not conducive to small classroom teaching and seminar type teaching. There is still much space for improving the multimedia information technology level of the classroom.

(2) As a double first-rated university, the university should invest more in the expenses for comprehensive practical teaching of students of this program. The expenses allocated are not enough currently.

(3) The on-campus and off-campus internship and practice bases are insufficient and far, which cannot fully satisfy the needs for practical teaching. Also, some bases are idle, with an insufficient utilization rate.

## **3. Recommendations:**

(1) The information technology construction of classrooms and labs should be accelerated and the update and upgrading of teaching facilities should be quickened so as to improve conform and adaptability and meet the needs of IT teaching reform. A group of smart classrooms should be built to play a guiding and demonstrative role.

(2) More off-campus internship and practical training bases should be built and the building and utilization of the Zhuozhou Practical Base should be focused on. Practical training bases should be built in the southern part of China. Pest gardens should be established on campus so that students can observe the pest occurrence laws in a systematic way.

(3) More investments should be made. Fresh solid pest samples should be supplemented. Pest, grass and rodent samples should be supplemented and updated so as to guarantee teaching demands.

(4) The amount of practice teaching expenses should be increased so as to reach the normal value requirements for double first-rated universities.

## **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.

### **1. Achievements:**

A complete teaching quality assurance system has been built at the school and university levels. The quality criteria, evaluation measures and basis for all teaching links have been formulated and released. The teaching tasks are advanced in a steady and orderly way. The school carries out self-evaluation and external evaluation of the program, gradually improves teaching quality and creates an atmosphere of teaching quality culture.

### **2. Challenges and deficits:**

(1) There is a lack of school-level supervisor system and no supervisors are selected. The problems found in teaching are not timely fed back, which impacts the achievement of graduation requirements for students to a certain extent.

(2) The key teaching links and teaching details of teachers in affecting teaching quality are not supervised and inspected in place, with a lot of problems. For example, among examination papers, there are no requirements for Papers A and B. Question types are still traditional. There are no rigid institutional constraints on the annual repetition rate of questions. The management of graduation papers is not standardized and the process management record is not detailed and too simplified, with a lack of improvement in summary. Teachers' analysis of examination results is too simple and only goes through the formality. Continuous improvement remains at the level of concept and is not made in teaching details.

### **3. Recommendations:**

(1) A school-level supervisor team composed of 3 to 5 members should be built. The post

of full-time teaching officer should be added.

(2) Strengthening the management of student status archives. The curriculum quality management criteria and norms should be released and the process management of teachers' teaching work should be enhanced. Greater challenge should be created against academic requirements for students' curriculums, teaching links and examinations. The process assessment of curriculum should be vigorously advanced and the percentage of the final-term examination result in the total result should be reduced. The school should establish a unified standard to rigorously manage examination papers and graduation theses. Continuous improvement should be highlighted and made.

(3) Periodic third-party evaluation of the program and the course quality should be established and enhanced as soon as possible.

## **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.

### **1. Achievements:**

Based on obviously advantageous discipline strength and perfect enrollment system, the program has adopted targeted measures and made a lot of fruitful efforts in absorbing excellent students. The quality of students enrolled has risen year by year and their score is generally 100 higher than local scores for admittance into key universities. Obvious effect has been produced in the actively advanced student-centered international joint training of undergraduates, study tour and exchanges as well as internship projects. Student guidance and service enjoy perfect systems, diversified platforms and rich forms, resulting in great satisfaction of students.

Remarkable achievements have been made in employment and academic guidance. Among them, the experience of talent training by the team of the tutorship system and the head teacher system is worthy of promotion. Great achievements have been made in the training of top-notch innovative academic talents. Nearly 70% students of the program have chosen to continue their postgraduate study. According to the survey of 20 students at school, all of them are satisfied with their learning experience, learning effect and personal growth. The graduates have a solid foundation, a simple style, great adaptability and high innovation ability. Overall, employers are quite satisfied with them.

### **2. Challenges and deficits:**

(1) The first-choice rate of students towards the program is low and there are many students who choose to transfer to other programs (about 20 for each grade).

(2) The training quality for top-notch innovative students is high, with high fitness of

training objectives but low achievement of industry leaders' talent training. It is mainly focused on students' comprehensive and professional practical ability. No sufficient opportunities and expenses for students to participate in comprehensive practice of industry enterprises are invested in.

(3) Students have not made enough achievements in innovation and entrepreneurship, which need to be urgently enhanced. Contests and competition of Internet +, "Challenge Cup" for college students and mathematical modeling should be paid attention to.

### **3. Recommendations:**

(1) The program publicity efforts should be increased in enrollment and recruitment talks by experts should be carried out, especially faculty' academic publicity for enrollment. The seminars for discipline development of freshmen and discipline frontier should be organized and program development should be introduced so as to increase students' recognition towards the program. The all-member tutorship system should be vigorously promoted and actively implemented after freshmen enter the university.

(2) The top-level design of practical teaching links as well as talent training through university-region and university-enterprise cooperation should be highlighted. More opportunities should be provided to students to participate in internship in enterprises. More efforts should be increased to the practical base building on and off the campus. More practical teaching opportunities should be provided to students.

## **(VIII) Program characteristics**

### **1. Whether the program has characteristics, if yes, in what aspects**

The Plant Protection School has always had a strong discipline team. Historically, a lot of masters and talents have emerged. The faculty team has remained strong till now (82 full-time faculty members, including 37 professors and 37 associate professors). Most faculty members have doctoral degrees (97.6%) and overseas study and visit experience. The school boasts a sound discipline system and the discipline orientations of insect classification, comprehensive crop disease prevention and control and plant pathology have outstanding advantages, obvious characteristics and solid strength. The discipline is among the first first-level doctoral programs and national 211, 985 and double first-rated key disciplines. The master and doctoral talent training system is complete; and the talent training effect is great, with good social evaluation results.

The program has its distinct characteristics, which are shown in the following aspects: Teaching promoted by scientific research, teaching aided by scientific research and talent training by scientific research. Achievements in scientific research are converted into teaching resources and content. The "four-in-one" mode of talent training by team, with the core of the all-member tutorship system and the system of excellent professors as head teachers, plays an important role in rebuilding the new teacher-student relationship and increasing students' enthusiasm and initiative. A colorful and diversified study and employment platform has been built, which is popular among students. It is generally believed that the program enjoys distinct characteristics and an outstanding demonstrative and guiding role.

### **2. What problems the program have in characteristic construction**

The "four-in-one" talent training mode by the team of teachers should be further detailed, deepened and extended in terms of students' study, academic training, technology competition and professional practice so as to make greater achievements and produce larger influences.

Currently, the number and quality of papers published by undergraduates, discipline status of the university in 211 and 985 universities and double first-rated universities, as well as faculty's research strength and ability are not completely matched. There should be more papers with higher quality.