

Policy Brief

Introducing the German “Dual Apprenticeship System” to China



Report by

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1. Background

In last two decades, Chinese agricultural sector has witnessed aging population with farmers being more than 50 years old in many regions. It becomes very common that farmers are not only relatively old, but also less educated and working only part-time in agricultural sector. According to official statistics, there are about 3.1 million new-type agricultural entities, i.e. family farms, farmer cooperatives and modern agricultural companies, which are farming on approximately 40% of Chinese farming land until the end of 2016. Chinese agriculture is not any more traditional subsistence peasant economy. Recently, many people such as migrant rural workers, graduates, veterans, researchers and technicians are returning to work in agricultural sector and becoming a great asset to the above-mentioned new-type agricultural entities.

Since 2012, developing new-type professional farmers has been strongly emphasized in No. 1 Document. In January 2017, the Ministry of Agriculture issued a special “13th Five-year Plan for Cultivating New-type Skilled Farmers” to actively engage agricultural vocational schools in cultivating a new type of Professional farmers. At the same time, the Chinese government published a series of important documents including the “Decision of the State Council on Accelerating the Development of Modern Vocational Education” and “Development Plan for Modern Vocational Education System (2014-2020)”. In 2015, the Ministry of Education deployed a task of selecting 165 entities for a modern apprenticeship pilot project. As an initiator of the National Steering Committee for Agricultural Vocational Training and Education (hereinafter referred to as the Steering Committee), the Ministry of Agriculture looked to implement a pilot project in Wenzhou Vocational College of Science and Technology (WVCST) with the German “Dual Apprenticeship System” for cultivating new-type farmers in China.

As China's national conditions and agricultural development differ greatly from those in Germany, the problem remains as how we could incorporate the “Dual Apprenticeship System” into a suitable solution that fits local conditions in Chinese vocational schools. Over the past year, the German-Sino Agricultural Center (DCZ) has organized expert visits to China including WVCST and Germany to get a clear picture of the status quo. Preliminary discussions were held on the basis of intent of cooperation, resulting in an initial implementation plan on the introduction of the “Dual Apprenticeship System” in Wenzhou. This policy brief will analyze potential setbacks in its introduction to China and feasible solutions from the perspective of vocational schools, so as to share the experience with other interested counterparts in China.

2. Major bottlenecks in introducing the German “Dual Apprenticeship System” to China

2.1 Insufficient enterprise involvement

In China, agricultural vocational education mainly takes place in vocational schools, with a relatively low degree of enterprise involvement. Practical training in vocational schools in China accounts for 50% of the program, mostly taking place in school training facilities. Even if such training takes place in agricultural enterprises, the training content is often unrelated to theoretical study in school. There is a lack of systematic training objectives and tasks, or professional trainer staff, leading to varying quality of the training. In this case, the practical skills of vocational school graduates are

relatively low and inadequate to earn recognition of the society, especially of enterprises. Graduates may not take up employment in the agricultural sector, nor are enterprises motivated enough to get involved. Thus, we face the situation of “insufficient enterprise involvement”.

In Wenzhou, we were often asked the question: “As the WVCST has good training facilities, is it possible to replace training in enterprises with practical training in school? “This could greatly reduce the operational complexity, but it is not the “Dual Apprenticeship System” that we wish to introduce. Specific reasons can be summarized in three points: (1) **Market competition cannot be simulated:** In the face of constant fierce competition in the market, farms must relentlessly strive to improve their productivity. The circumstances differ from the school training base; (2) **The professional expertise of field trainers is irreplaceable:** Trainers on farms are usually managers or executives who not only know how to train apprentices, but also understand the industry well. They have rich practical experience, which is different from teachers in vocational schools; (3) **Only enterprises are able to provide an actual work environment and the latest technologies:** The only way for apprentices to learn about the actual work environment and the ins and outs of business decisions is through involvement in the daily work on farms; in addition, enterprises must constantly update technology, management and marketing techniques in order to meet the competition. Here, apprentices get a first-hand experience on what is the latest state in the field, which is also something that vocational schools are unable to provide. (4) **A valuable opportunity for both enterprises and apprentices to learn from each other:** within two to three-years of vocational education, the farmer and the apprentice have enough time adapting to each other and gaining deep insights of each other skill set. On the one hand, the farmer can clearly judge whether the apprentice is qualified in terms of his or her vocational skills, whether he or she has adapted himself or herself into the company’s culture and whether he or she is the talent the company is seeking for. On the other hand, the apprentice can make a reasonable judgement on his or her role in the enterprise, the philosophy of the company and whether he or she would like to stay in the company. It therefore somehow reduces the risks for both the farmer and the apprentice to make a decision.

It goes without saying that, whether enterprises are willing and capable of participation in vocational education depends greatly on the level of agricultural development. With the industrialization of agriculture, various types of modern agricultural enterprises start to emerge in China, which results in an increasing demand of professionally trained and skilled employees. They also gradually begin to offer internships. With its high level of commercial development, Wenzhou shall be well-equipped to engage agricultural enterprises in vocational education. Moreover, the WVCST has already established cooperation with local agribusinesses. The application of the “Dual Apprenticeship System” could solve the issue and actively engage eligible agribusiness and corporate trainers in the process.

2.2 Shortage of qualified teachers and corporate trainers for the “Dual Apprenticeship System”

Germany’s “Dual Apprenticeship System” would not have been successful without qualified teachers and corporate trainers. German vocational schools have teachers for theoretical and practical sections. The former normally holds a bachelor or master's degree, has at least one year experience, and completed 2-years systematic training in teaching practice and pedagogy before taking up a teaching position in a vocational school. The latter shall have passed the "master farmer" training with rich experience in the field. Some also operate their own farms. Moreover, Germany’s

vocational education teachers usually stay in close contact with farms. Mr. Liedl, a teacher with over 30 years of experience from Regensburg, told me: As head of the horticulture department, he would take initiative to contact farm owners and check if the teaching programs fall in line with their training plans, and to gain insights into the latest skills in demand. Students, who choose vocational education, are usually not fond of dry and uninteresting theory courses. Teachers can be much more convincing when they combine theory with practice in teaching. Similarly, it is also required in Germany that trainers on farms shall possess specific qualifications, i.e. the "master farmer" certificate, which is one of the prerequisites for the farm to receive apprentices. Take master gardeners in Bavaria for example. To obtain the "master gardener" certificate, one shall first of all receive 3 years of vocational education for gardeners, afterwards at least 2 to 3 years of field practice, then another 1.5 to 2 years of training on expertise and teaching pedagogy, and finally final exams to complete the process.

During the field research in Wenzhou, we found that local vocational schools generally have no dedicated teachers for the practical field. Teachers of specific subjects who come from a non-teaching education background usually need to complete a 2-week pedagogical training, and another half year of teaching internship at the school before officially assume the role. Their pedagogical training tends to be relatively weak, so is their connection with farms. There are, in fact, a number of professional farmers locally available, but they would need to go through systematic training, especially pedagogic training before achieving the "master farmer" qualification.

2.3 Institutional and regulatory systems need improvement

As a leading player in China's agricultural vocational education, vocational schools also become the main target of appropriate institutional and regulatory systems. The incorporation of agribusinesses into the existing vocational education system requires legislation by competent government departments that deals with issues such as "how can an agricultural enterprises be eligible to receive apprentices?" "What qualifications are required of corporate trainers before they could train apprentices?" "What kind of contract shall be signed between the enterprises and apprentices?" "What type of training shall enterprises provide?", etc. Government authorities shall also set up regulatory agencies, in particular to supervise over training in agricultural enterprises. Currently, the Steering Committee supports the Ministry of Education in providing consulting and counseling services. There are no dedicated governmental agencies for supervision of training in agricultural enterprises.

The introduction of legislation in China normally relies on experience from pilot projects, which takes time. A new regulatory system is only possible with the reshuffling of existing interest parties, which would prove to be even more difficult. Both changes shall fully consider the roles and demand of stakeholders, i.e. government authorities, enterprises, schools and apprentices. It is no easy task to alter their behavioral patterns and relationships. However, the implementation of the "Dual Apprenticeship System" requires major changes in institutional and regulatory systems. Otherwise, all pilot projects in vocational schools remain a local practice that could not be transferred and implemented on a regional or national scale. It remains, therefore, a major bottleneck in the introduction of the "Dual Apprenticeship System".

3. Proposals to the introduction of the German “Dual Apprenticeship System” to China

3.1 Introduce a simplified version of the “Dual Apprenticeship System”

The introduction of the German “Dual Apprenticeship System” to China will encounter the three major obstacles as mentioned above. It would be difficult to try and strictly follow every design of the German system from the start. After many rounds of consultation with the WVCST, we have agreed to focus on horticulture and agriculture and introduce a simplified version of the “Dual Apprenticeship System” to the WVCST.

Specifically, we will divide the 3-years program into 2 phases, the first one for two years, with practical training on a later date and the second one for one year, to be conducted in modules. Thus, the complexity of introducing the “Dual Apprenticeship System” can be greatly reduced, while the quality of graduates is guaranteed after the 3-years program. The first year will focus on school-based teaching, so that students learn about subject matters in agriculture or horticulture. In the meantime, the school shall put in efforts in training program development, teacher training and selection/training of partner enterprises. In the second year, school learning and training in enterprises would each take up half of the time, so that the program carries further into the profession and field of study. As for the WVCST, the areas of expertise may involve field crop planting, agricultural promotion, animal husbandry, horticulture and floriculture. After two years of study and training, apprentices can reach EQF level 3. In this way, the project will be able to earn more time in solving two major bottlenecks as mentioned above, i.e. enterprise involvement and capacity building of teachers and trainers. Now the second year of program may be too specific on the areas of study, which can hinder future career opportunities and professional development of the apprentice. Therefore, apprenticeship in the field of agriculture can follow two career paths, i.e. “agronomist” and “gardener” in the third year, so as to ensure comprehensive knowledge, skills and competence of the apprentice. The apprentice shall be able to achieve EQF level 4 qualification, which is in line with requirements of the German "Dual Apprenticeship System" (Figure 2). In the third year, school learning and training in enterprises would each take up half of the time.

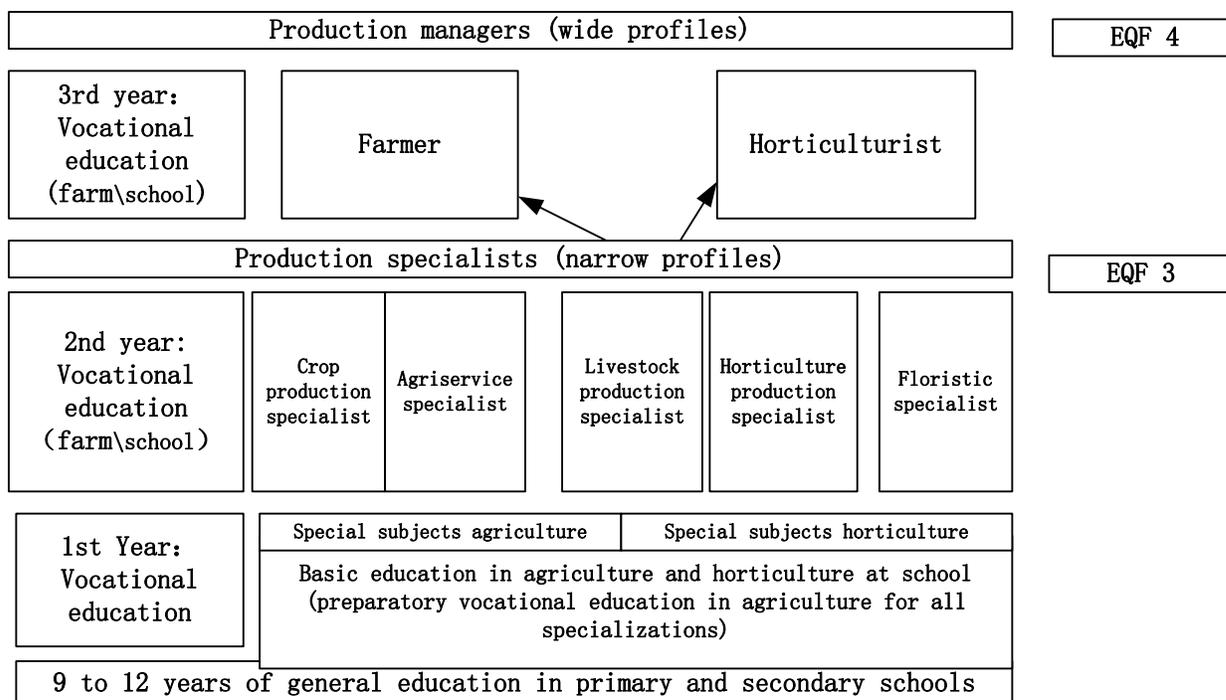


Figure 2 A simplified “dual apprenticeship system”

3.2 Take standard guidelines of education as a starting point to discuss suitable local training programs

As a result of the field study, the WVCST decided to proceed with revising the training program when introducing the “Dual Apprenticeship System”. To this end, we need to work on the following three aspects.

First, we shall establish a **training program committee**. The committee could have no more than 10 members, with representatives from training schools and enterprises. Government participation is also strongly desirable. It is critical to involve all parties so that the committee is able to cater vocational education into the demand of labor market, with the support of relevant authorities. In addition, committee members shall be experts or veterans in related fields, and would actively participate in pilot project activities in the future. The committee may divide into sub-groups or sub-topics by common courses, basic courses, school training, training in enterprises and inter-company training. At the same time, the committee shall formulate its articles of association and put in place an internal self-regulatory mechanism. Consensus shall be reached on the topics of apprentice recruitment, teacher qualification requirements, training programs (including the report system, content of examinations, examination committee, enterprises for training and trainers validation) and sources of funding (e.g. for remuneration of apprentices), and approved by relevant departments.

Secondly, the committee shall give a clear description of the 10 points in the **education standard guidelines** (Table 3). Point 1, 3, 4, 6 and 10 concern the labor market demand, and shall be defined

by enterprise representatives through discussion. Point 2 is for subject codes in the training program, while the remaining points focus on defining requirements for respective vocational education and training, which require active participation of the parties concerned. Thus, by identifying education standard guidelines, we would eventually be able to present a unified training program that covers requirements from schools, enterprises and inter-company training. Schools can organize the inter-company training by coordinating with enterprises.

Table 3 Template of education standard guidelines

No.	Content
1	Name of occupation
2	Special classification codes, namely subject codes in the training program
3	Description of occupations
4	Tasks
5	Description of learning objectives
6	Occupational qualifications (corresponding EQF levels)
7	Admission requirements
8	Duration of study
9	Examinations
10	Specific requirements for occupations

Finally, **professional trainings, workshops and exchanges** on key elements of the “Dual Apprenticeship System” shall be organized. These are namely the following 5 elements: (1) "Dual Apprenticeship System" pedagogy for school teachers (2) teaching and examination methods for subject modules (3) cultivation of corporate trainers (4) procurement and training on inter-company training equipment (5) management of training quality in schools and enterprises. The activities can take place locally or abroad. Due to the cost factor, it is recommended that principle project participants shall join a study tour to Germany in the preliminary phase of the project so that they can get first-hand experience with the “Dual Apprenticeship System” while taking the opportunity to receive training on any of the 5 key elements as mentioned above. Based on past experience, it takes several rounds of workshops and training for committee members to come up with a suitable talent training program that’s fitted for local conditions.

3.3 Actively seek government support from both sides

After one year of efforts, the DCZ managed to help the WVCST establish a preliminary intent of cooperation with the Bavarian Center for Agricultural Education (Landwirtschaftlichen Lehranstalten Triesdorf), a cooperation that has been approved and supported by Bavarian education and agricultural authorities. This has laid a solid foundation for the WVCST to officially implement the “Dual Apprenticeship System” in Wenzhou. However, due to the large influx of refugees into Germany, refugees have become a focus of vocational education in Bavaria, which results in limited support of the local government to new international cooperation. In this context, the WVCST shall actively seek the support of the Chinese government in terms of funding, policy and regulation in

order to implement the “Dual Apprenticeship System”. The first phase of the project requires a large amount of “expertise” input from Germany, which leads to prominent demand for financial support. For example, a 2-weeks training in Germany on "teaching methods and school management" for 15 trainees is estimated to cost around RMB 600,000, which includes course fees, accommodation, travel expenses, translation costs, organization and coordination expenditures. Accordingly, exchanges and workshops in the project would be difficult to organize or sustain without any external financial support. As the project progresses with accumulating experience, we also need to mobilize stakeholders to actively participate in, and gradually change the entire existing system. Government policy and regulatory support will be increasingly important.

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