



# Analysis on the Human Resource Management in Chinese Agricultural Sector: Case Study From State-Owned Farms in Heilongjiang Province

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The aim of this paper is to understand and clarify the strategies, characteristics, and practices of human resource management (HRM) in Chinese agricultural sector from the case study of state-owned farms in Heilongjiang Province. First of all, the technical efficiency of state-owned farms is analyzed using Data Envelopment Analysis (DEA). Secondly, the characteristics of HRM in three farms are analyzed through person to person interview of managers in farms. Thirdly, questionnaire survey to the employees in two farms for their job satisfaction is analyzed for understanding the effect of HRM. Following results are obtained based on the empirical analysis. Firstly, by introducing new strategy so-called “Baiqianwan Talents Project” (BTP), more attentions to the importance of human resources and cultivating managers have started to be paid in state-owned farms. Secondly, the importance of material HRM and the promotion opportunity as well as learning opportunity are recognized through questionnaire survey to the employees of farms. Thirdly, different corporate culture in each farm such as “learn by doing”, “harmonization”, and “development” is attempted to be established through trial and error.

*Keywords:* state-owned farms, China, agriculture, human resource management (HRM)

Human resource mainly means the workforce of an organization or an economy. It has both quantitative and qualitative dimensions. The quantitative characteristics of human resource refer to the number of people and the work hour; the qualitative characteristics are skill, knowledge, and factors affecting human capabilities to do productive work. However, human capital usually refers to the quality part of human resources (Schultz, 1961). Along with the change in the goals of development in the evolution of development thought [from the increase of GDP (Gross Domestic Product) to sustainable development], the capital accumulation has also been shifted from physical capital, human capital, and knowledge capital to social capital (Meier, 2000). Following the above way of thinking, human resources are essential for the sustainability and competitiveness of agricultural development, especially, with the advent of increasing scale of farm households and agricultural

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corporations, and the attention to human resource management (HRM) should be paid for realizing the objectives of human development.

In China, with the reform of state-owned enterprises, the increasing of private corporations and foreign enterprises, HRM is facing the problem of pursuing scientific and standardized management. On the other hand, agricultural human resources are facing problems of low education and low ratio of technicians and management. Therefore, the aim of this paper is to understand and clarify the strategies, characteristics, and practices of HRM in Chinese agricultural sector from the case study of state-owned farms in Heilongjiang Province.

### Research Framework and Methodology

Research framework of the paper is shown in Figure 1. Following methodologies were adopted for achieving the goal of the research. Firstly, current situations of human resources in agricultural sector in China will be described according to the data from government statistics and censuses, and literature review on HRM in agricultural sector will be undertaken for understanding the background of the issue. Secondly, for the empirical analysis on HRM in agricultural sector in China, case study from state-owned farms in Heilongjiang Province will be undertaken to clarify the actual conditions and characteristics of HRM in these farms through person to person and telephone interview as well as questionnaire survey. Additionally, Data Envelopment Analysis (DEA) will be introduced by using the BCC model for measuring the technical efficiency of state-owned farms in Heilongjiang Province and that of targeted farms. Finally, policy implications on the HRM in agricultural sector in China will be drawn based on the analytical results.

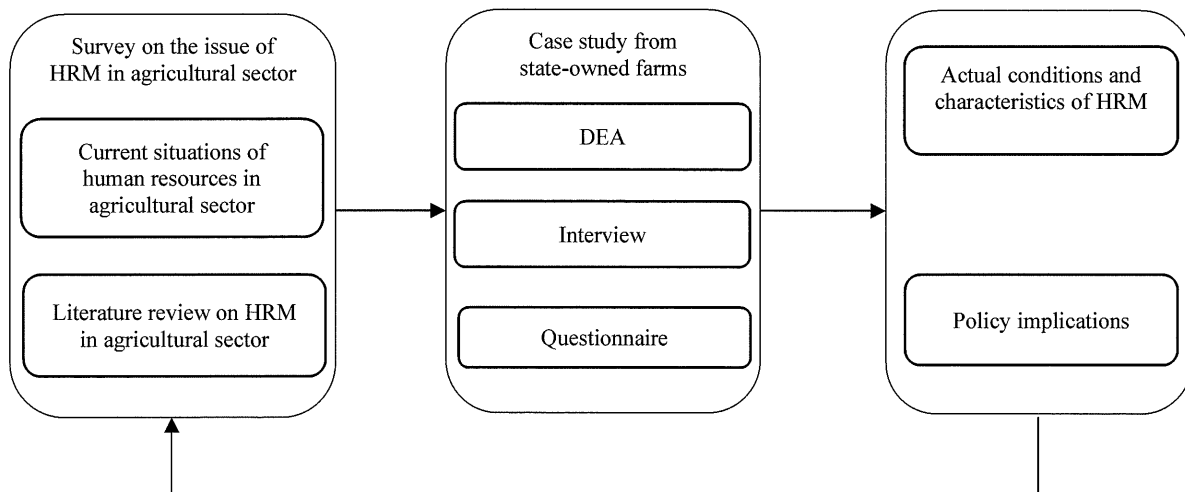


Figure 1. Research framework.

### Current Situations of Human Resources in Chinese Agricultural Sector and in Heilongjiang Province

In “2010-2020 Medium and Long-term Plans for Construction of Rural Practical Human Resources and Agricultural Technical Human Resources”<sup>1</sup>, the Chinese Government points out that China is facing the following problems with agricultural human resources: (1) the shortage of the total number of agricultural human resources and its low quality; (2) the practical results from agricultural researchers are not sufficient; (3)

<sup>1</sup> Retrieved from [http://www.moa.gov.cn/zwl/m/zcfg/nybgz/201110/t20111018\\_2364086.htm](http://www.moa.gov.cn/zwl/m/zcfg/nybgz/201110/t20111018_2364086.htm).

the shortage of high level human resources; (4) the unreasonable distribution of human resources both by region and by industry, and there are serious shortages of human resources in less developed regions; and (5) the system of human resources from training, developing, recruiting, evaluating, and inspiring to securing is not completely established, the investment in working conditions is not adequate, and there is serious flow out of human resources.

From Table 1, it can be seen that most of the rural practical human resources graduated from middle school, 40% of them are higher than 45 years old and 90% of them have no technical titles. Furthermore, according to the “Chinese Talents Development Report No. 3” (Pan, 2006) in 2006, the talent competitiveness in Heilongjiang Province ranked 16 in 31 provinces, autonomous regions, and municipalities. Amongst, the indices of talent scale, scientific research investment for talents, output of talent sci-tech outcome, and living environment for talents ranked 14, 15, 15, and 16, respectively, which are in the middle level of the nation. The index of talent quality ranked eight, which is in a little advanced position. However, the output index of conversion rate of talent sci-tech outcome ranked 23. The index of labor productivity of primary industry in Heilongjiang Province ranked 16, which is also low for an agricultural province. The report also points out that, for the revitalization of northeast old industrial base, it is important to implement talent strategy, optimize talent allocation, and attract talents from outside to improve competitiveness and ensure the sustainable development of Heilongjiang Province.

Table 1

*General Situation of Rural Practical Human Resources in China 2010*

	Item	Number of people	Ratio (%)
	Agricultural human resources	10,486,360	100.0
	Female	1,452,090	13.8
Grouped by education	Junior college and above	341,374	3.3
	High school	2,385,127	22.7
	Middle school	6,498,252	62.0
	Primary school	1,189,354	11.3
	Uneducated	72,253	0.7
Grouped by age	35 and younger	1,970,649	18.8
	36-40	1,904,019	18.2
	41-45	2,250,020	21.5
	46-50	1,986,592	18.9
	51-54	1,124,793	10.7
	55 and older	1,250,287	11.9
Grouped by skill level	Farmer senior technician	29,683	0.3
	Farmer technician	147,876	1.4
	Farmer assistant technician	179,527	1.7
	Agricultural technician	695,141	6.6
	No title	9,434,133	90.0
Grouped by work type	Production type	4,025,224	38.4
	Manager type	3,181,893	30.3
	Technical service type	1,026,548	9.8
	Skill drive type	1,460,023	13.9
	Social service type	792,672	7.6

Note. Source: Statistical Report of Chinese Talents Resources 2010, p. 81.

On the other hand, according to the different types of corporations in business environment indices, the supply of human resources has the characteristics as shown in Table 2, that both state-owned and non-state-owned corporations have negative evaluations on the supply of human resources, with 2.98 for the former and 2.77 for the latter. However, the evaluation in state-owned corporations is higher than that in non-state-owned corporations, and the difference is significant at the level of 1%<sup>2</sup>. “This may indicate that state-owned corporations have advantage on employment conditions and welfare, therefore in the market of human resources, people would like to go to state-owned corporations for employment” (Wang, Yu, & Fan, 2013, p. 79).

Recently, state-owned farms (an important part of agricultural corporations in China) in Heilongjiang Province (one of the most concentrated province of state-owned farms) implemented a “Baiqianwan Talents Project” (BTP) for constructing agricultural human resources in Heilongjiang reclamation area.

Table 2

*Indices of the Supply of Human Resources: Compared With State and Non-State-Owned Corporations (2012)*

	Technicians	Managers	Skill workers
State-owned corporations	2.94	3.05	2.94
Non-state-owned corporations	2.71	2.78	2.82

*Note.* Source: Business Environment Index for China’s Provinces 2013, p. 80.

### **Selected Literature Review on HRM in Agricultural Sector**

Howard and McEwan (1989) presented a framework of HRM and reviewed studies on the problem of labor in agriculture. From the perspective of resource-based theory, Amin (2004) conducted a case study on six dairy farms and concluded that dairy farms have the potential of achieving competitive advantage through the HRM function. In Japanese agricultural corporations, studies have been conducted on the employment consciousness, job-leaving, and attitude of employed farmers under the framework of HRM (A. Kiminami, L. Kiminami, & Furuzawa, 2011; A. Kiminami & L. Kiminami, 2012; Cao, L. Kiminami, & A. Kiminami, 2012).

On the other hand, in China, recent studies indicate that there is a positive linkage between strategic HRM practices and firm performance in China (Akhtar, Ding, & Ge, 2008; Ngo, Lau, & Foley, 2008). The deficiency of HRM in reclamation area had been pointed out as follows (Song & Yan, 2011; Lu, 2011; Yu, 2011): Firstly, the concept of personnel management still has stronger influence than the concept of HRM and the attention to financial and physical resources is paid more than to the human resources by neglecting the core effect of human resources; secondly, the training system (both content and form of training) is dull and routine without considering the actual needs of corporation; thirdly, the motivation system is only emphasized by the physical incentives rather than mental incentives; etc. The empirical analysis on agricultural corporations in China is scarce and it is therefore required emergently.

### **Technical Efficiency in State-Owned Farms in Heilongjiang Reclamation Area**

Technical efficiency usually means the ratio of output to input quantitatively. An efficient organization may have efficient management and allocate resources by maximizing outputs or minimizing inputs. It is an important index for analyzing organizational performance, especially for non-profit organizations. Since

<sup>2</sup> The statistics for business environment indices were from the investigation on thousands of corporations in nationwide of China, and were based on the subjective evaluation of local business environment as well as on some objective evaluation. See Wang et al., 2013, PVII for details.

state-owned farms are aimed to maximize output, the authors intend to examine the performance of state-owned farms by evaluating their technical efficiency using the method of DEA.

Since grains are main products in the state-owned farms in Heilongjiang, the authors use grain as the output, and labor, sown areas, chemical fertilizer, and total power of agricultural machinery for grain production as inputs. The description of variables is shown in Table 3. Software of DEAP 2.1 is applied for evaluation (Li, Nanseki, & Takeuchi, 2012; Fraser & Cordina, 1999) and input oriented models are used for knowing how to reduce inputs when the same outputs are obtained.

Table 3

*Variables and Summary of State-Owned Farms in Heilongjiang Reclamation Area, 2011*

Variable	Description of the variable	Unit	Max	Min	Mean	Standard deviation
Output	Output of grain production	Tons	917,948	55	199,753	192,271
Input 1	Labor for grain production*	Persons	31,335	27	5,073	4,428
Input 2	Sown areas for grain	Hectares	101,676	8	24,397	20,665
Input 3	Net quantity of chemical fertilizer for grain production*	Tons	18,833	2	4,507	3,844
Input 4	Total power of agricultural machinery for grain production*	Kw	380,878	65	63,613	61,293

*Notes.* 1. The number of farms is 112, deleting one farm which has no data of input 4; 2. labor for grain production = labor in primary industry\* sown areas for grain/total sown areas; net quantity of chemical fertilizer for grain production = chemical fertilizer\* sown areas for grain/total sown areas; total power of agricultural machinery for grain production = total power of agricultural machinery\* sown areas for grain/total sown areas. Source: Statistical Yearbook of Heilongjiang Reclamation Area 2012.

Table 4 shows the results of efficiency in farms by variable return to scale model of DEA (which is called BCC model). About 9.8% of farms are efficient while more than half of the farms have the efficiency between 0.800 and 0.999. Farms with less than 0.800 of efficiency reached more than 30% of total. On the other hand, nearly half of the farms are constant returns to scale which means that they could increase their output by the same ratio of inputs.

Table 5 shows that Farm B and Farm X (they will be explained later) have relatively low efficiency among the 112 farms. From the pure technical efficiency, they can have the same output by reducing the inputs proportionally. However, the scale efficiency also shows that they could be more efficient by changing the structure of allocated inputs. Besides, the three farms are all decreasing returns to scale.

In the next section, HRM in farms will be clarified focusing on how they manage their human resources referring to how they deal with the quality of labor such as the employee's educational level, their agricultural experience, and the attitude toward work.

Table 4

*Farms With Different Efficiency in 2011*

Total efficiency	Number of farms	Means			Number of farms		
		Technical efficiency	Pure technical efficiency	Scale efficiency	drs	irs	crs
1.000	11 (9.8%)	1.000	1.000	1.000	0	0	11
0.800-0.999	58 (51.8%)	0.893	0.902	0.990	25	11	22
0.600-0.799	33 (29.5%)	0.702	0.727	0.973	10	10	13
0.400-0.599	10 (8.9%)	0.537	0.538	0.998	2	1	7

*Notes.* drs = decreasing returns to scale; irs = increasing returns to scale; crs = constant returns to scale. Source: result from DEAP 2.1.

Table 5

*Efficiency of Three Targeted Farms in Heilongjiang Reclamation Area, 2011*

	Farm B	Farm X	Farm Y	Mean of 112 farms
Technical efficiency	0.832	0.792	0.878	0.815
Pure technical efficiency	0.860	0.798	1.000	0.827
Scale efficiency	0.967	0.992	0.878	0.987
Returns to scale	drs	drs	drs	-
Ranking of technical efficiency in 112 farms	62	70	44	-

Notes. drs = decreasing returns to scale. Source: result from DEAP 2.1

### Characteristics of HRM in Three Farms

The managers of human resource departments in three farms were chosen for exploring the characteristics of HRM in agriculture reclamation area through person to person interview and supplementary interview by telephone (undertaken from June to August, 2012). Those who are in charge of human resource departments such as the directors of operating areas, agricultural technicians, operators, and accountants (excluding farm households) are considered as agricultural human resources in the paper. Since state-owned farms have the centralization of management, it is supposed that they have the similarities of HRM policy as they are in the same reclamation area but have differences in the practices and consciousness. The three farms are Youyi (represented by Y) farm which belongs to Hongxinglong administration, Baoquanling farm (represented by B) and Xinhua farm (represented by X) both belong to Baoquanling administration.

### HRM Strategy and BTP<sup>3</sup>

From the year of 2009, agricultural reclamation in Heilongjiang has introduced human talents of 21,991 through “Baiqianwan” project, in which 85 have doctoral degree, 760 have master’s degree, 7,591 have junior college degree, and 772 have middle and high school degree. Some of these college students have become the agricultural technicians or assistants of directors in management areas.

The reasons for implementing this strategy could be explained from two aspects: Firstly, for realizing food security at the national level and for the development of the reclamation and rural areas as an important agricultural province in China; secondly, for solving the problem of increasing unemployment of college students. The HRM strategy, the content, the implementation method, and the effect and evaluation of “BTP” are summarized in Table 6 from the interviews to the managers of human resource department.

According to the interviews, the strategy of HRM is mainly conveyed to employees by documents and meetings, and the duration of this project is not clear. Moreover, three managers have different understandings about this strategy. Farm B has a big view about the whole environment of human resources, while Farm X puts stress on the effect of this strategy and Farm Y emphasizes the aim of stocking human resources.

Their evaluation about the strategy shows that human resources in the field of agricultural machinery are

<sup>3</sup> “Baiqianwan Talents Project” (BTP) is one of HRM strategy. “BTP” means to introduce one hundred graduate students to farms, one thousand college students to administration area, and ten thousands of students graduated from junior college or technical secondary schools to the reclamation area.

required but college students lack of practical ability which means that there is some mismatch between the needs of farms and the contents of education in agricultural schools.

Table 6

*HRM Strategy and “BTP”*

	Farm B	Farm X	Farm Y
HRM strategy	Support farmers, beautify city, enrich citizens, and strengthen industry	Achieve the increase of cereals and per capital income	To achieve modernization of agriculture
Content of “BTP”	To build the practical base for agricultural technicians in reclamation area	Within two years, we recruited about 60 people	Stock human resources for the aim of providing 21.5 billion kg cereals, and for the development of technology
Implementation method	Train college students in operating areas, strengthen their contacts with basic staff, and cultivate everyone	There are 44 agricultural human resources working in operating areas	Provide college students housing allowance and good salary treatment
Effects and evaluation	Their practical ability is relatively poor, they cannot endure hardship, there is shortage of human resources in the field of agricultural machinery, they need more training in schools, their willpower and practical ability need to be cultivated	The quality of human resources is getting improved, the average age of college students is 26 years old, their practical abilities need to be improved	We need human resources in the field of agricultural machinery, more practice and work on the producing line are needed, their knowledge, as well as social knowledge such as interpersonal relationship and experience need to be improved

*Note.* Source: the authors' interview.

**HRM Policies and Practices of Three Farms**

**Recruitment methods.** The administration of bureaus arrange fairs in agricultural universities through provincial human resource center, advertise job opening on internet and provincial human resource center, and organize farms to participate recruitment fairs. However, the recruitment was only undertaken in agricultural universities, and there was limited information provided to the students for a wider and deeper understanding about reclamation area especially to the students from southern areas of China.

**Training and development.** Table 7 shows that all the three farms emphasize the training of human resources not only on professional skills but also on comprehensive abilities. Some practice such as “one old helps one new” is undertaken in the farms which means that not only the professional skills of young students are improved through training programs but also their motivation is improved through practical work.

**Salary, job-leaving, and corporate culture.** All the three farms provide five insurances (include pensions, healthcare, unemployment, work injury, and maternity insurance), housing fund, food subsidy, and legal holidays, which are almost the same with other state-owned enterprises. Additionally, Farm B provides apartments while Farm X and Farm Y provide commuting subsidy. Furthermore, they all have the system of professional promotion.

Table 8 shows that there are few people have left jobs in current years. The most impressive characteristic of the three farms is that their corporate culture comes from so-called “Beidahuang spirit”, which is embedded in the history of the development of state-owned farms and has made great influences on a lot of young people in the past decades. However, the three farms are searching to establish their own corporate culture through redefining “Beidahuang spirit” by their local connotation. For instance, Farm B combines Beidahuang with Baoquanling and Y farm combines that with Youyi means that diversified corporate culture has been built for

corresponding to their new strategy of HRM.

For analyzing their corporate culture in a detailed way, the authors put all the words of the interview in the software of text analyzer and get the frequencies of keywords (see Table 9). From the keywords analyzing, different corporate culture for each farm can be concluded as the “learn by doing” type (Farm B), “harmonization” type (Farm X), and “development” type (Farm Y).

Table 7

*Training and Development*

	Training projects	Effects and evaluation
Farm B	Every year we have training programs on professional skills and comprehensive abilities of agriculture, accounting, agricultural machinery, husbandry, and water conservation	Their professional skills are improved through training and they get to know what they need to learn after working for a while
Farm X	We have training programs on general introduction of the farm, agricultural technique, financing, animal husbandry, and comprehensive knowledge, we support college students to get the undergraduate degree of agriculture or accounting	Their professional skills are improved through training
Farm Y	We have training programs on management and agro-economic management to cultivate young cadres, we provide general introduction of the farm, knowledge of agriculture, forest, and agricultural machinery to the college students and provide opportunity to undergraduate students to get the master degree of agricultural extension	They are expected to be cadres in the future

Note. Source: the authors' interview.

Table 8

*Job-Leaving and Corporate Culture*

	Farm B	Farm X	Farm Y
Job-leaving and reasons	We do not fire employees, some people left because of treatment	People left before, but now a lot of people want to go back because of good treatment and development	We do not fire employees, some people left because their couples had better choices
Corporate culture	The spirit of Baoquanling and the spirit of Beidahuang	We have good culture, and emphasize on relationship, we have the culture of army, sent-down youths, and youth who support to build frontier regions	The core values of Beidahuang are honest, pragmatic, innovative, and excellent, we also have the culture of Youyi farm
The method of conveying culture	Be influenced by what one hears or sees, old ones take care of new ones	By meetings, sending pamphlets, and organizing employees to study corporate culture	Through reports, meetings, educations, sightseeing, and travels
Atmosphere of working	Pretty good, they are plain and kindness	Great, we are harmonious and have no questions on communication	Great, harmonious, they are active
Advantage of SOEs	We have policy support	The advantage can only be seen by outsiders	With big land and centralized management, it is convenient to implement policies
Disadvantage of SOEs	Competitiveness is weaker than private corporations	The disadvantage can only be seen by outsiders	The power is too centralized, we need strengthen management and innovation

Notes. SOEs = state-owned enterprises. Source: the authors' interview.

**Questionnaire on Employees in Farm X and Farm Y**

In order to explore the evaluation on the HRM by employees, “questionnaire on the job satisfaction of employees on farms” to Farm X and Farm Y was conducted, and the results are shown in Table 10 and Table 11.

Table 9

*Frequencies of Keywords on Each Farm of the Interview*



Farm B	Used percent (%)	Farm X	Used percent (%)	Farm Y	Used percent (%)
Practice	1.60	Support	1.37	Machine	1.16
Training	1.60	Training	0.91	Training	1.16
Profession	1.07	Profession	0.91	Cadres	1.16
Spirit	1.07	Culture	0.91	Culture	1.16
-	-	Outsiders	0.91	-	-

Note. Source: calculated by text analyzer.

Table 10

*Responses' Ratio of the Top Three Satisfied Items and the Top Three to Be Improved Items by Orders in Farm X*

	The top three satisfied items by orders			The top three to be improved items by orders		
	First	Second	Third	First	Second	Third
A. the content of work	(67.74%)	6.45%	3.23%	0.00%	0.00%	0.00%
B. management of farm	12.90%	(38.71%)	12.90%	12.90%	0.00%	0.00%
C. working equipment	0.00%	9.68%	6.45%	(32.26%)	3.23%	6.45%
D. salary	12.90%	9.68%	6.45%	3.23%	(19.35%)	3.23%
E. bonus and subsidy	0.00%	3.23%	0.00%	19.35%	9.68%	16.13%
F. training and learning	0.00%	22.58%	(32.26%)	6.45%	0.00%	12.90%
G. promotion opportunity	0.00%	0.00%	16.13%	0.00%	(19.35%)	16.13%
H. regular working hours	0.00%	0.00%	6.45%	0.00%	9.68%	9.68%
I. regular holidays	0.00%	0.00%	0.00%	19.35%	12.90%	(19.35%)
J. human relationship	0.00%	3.23%	6.45%	0.00%	9.68%	0.00%
K. atmosphere of culture	6.45%	6.45%	9.68%	3.23%	12.90%	9.68%
L. others	0.00%	0.00%	0.00%	0.00%	0.00%	3.23%
No answer	0.00%	0.00%	0.00%	3.23%	3.23%	3.23%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes. 1. Questionnaires on Farm X are distributed by print-out paper to one agricultural technician or agricultural machinery technician in 31 operating areas (the total number of operating areas is 37 in Farm X) by the interviewed manger. The questionnaire was distributed on September 23, 2012, and taken back on September 27, 2012. The number of effective answer to the questionnaires is 31; 2. The attributes of respondents have some similarities, such as graduated from junior colleges, 20-39 years old, born in Farm X in Heilongjiang Province, half of them were majored in the science of agriculture and another half were majored in non-agriculture, and 65% of them are from farm households; 3. The highest ratio is marked.

About the top three satisfied items by orders, employees in Farm X feel satisfied about the content of work, management of farm, and training and learning by orders (see left part of Table 10). However, employees in Farm Y feel mostly satisfied about the promotion opportunity (see left part of Table 11). By comparing the answers from two farms, employees in Farm X get satisfaction from the content of work, while employees in Farm Y get satisfaction from the promotion opportunity.

Regarding to the top three to be improved items by orders, employees in Farm X hope to get working equipment improved for the first, salary and promotion opportunity for the second, and regular holidays for the third (see right part of Table 10). On the other hand, employees in Farm Y hope to get salary and training and learning improved for the first, regular working hours for the second, management of farm for the third (see right part of Table 11).

It is clarified from the questionnaire survey to the employees in Farm X and Farm Y that both of them are

satisfied with the management of farm, except with their salary, the regular working hours and holidays. For Farm X, the improvement of their working equipment may enhance their motivation, while for Farm Y training and learning may give them more satisfaction with work. Therefore, not only the material HRM and promotion opportunity are important but also learning opportunity is needed.

Table 11

*Responses' Ratio of the Top Three Satisfied Items and the Top Three to be Improved Items by Orders in Farm Y*

	The top three satisfied items by orders			The top three items to be improved by orders		
	First	Second	Third	First	Second	Third
A. the content of work	8.33%	0.00%	0.00%	8.33%	0.00%	0.00%
B. management of farm	0.00%	(25.00%)	0.00%	0.00%	8.33%	(41.67%)
C. working equipment	16.67%	(25.00%)	16.67%	0.00%	0.00%	8.33%
D. salary	0.00%	0.00%	0.00%	(25.00%)	0.00%	16.67%
E. bonus and subsidy	0.00%	0.00%	0.00%	16.67%	25.00%	16.67%
F. training and learning	0.00%	0.00%	0.00%	(25.00%)	8.33%	0.00%
G. promotion opportunity	(41.67%)	(25.00%)	8.33%	0.00%	0.00%	0.00%
H. regular working hours	0.00%	8.33%	0.00%	8.33%	(33.33%)	8.33%
I. regular holidays	0.00%	0.00%	0.00%	16.67%	25.00%	8.33%
J. human relationship	16.67%	16.67%	(75.00%)	0.00%	0.00%	0.00%
K. atmosphere of culture	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%
L. others	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
No answer	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

*Notes.* 1. Questionnaires on Farm Y are distributed by email (by the interviewed manger) to 15 undergraduates employed through the BTP in 11 administrations, including the posts of agricultural assistant, agricultural machinery assistant, and farm assistant. The questionnaire was distributed on September 12, 2012, and taken back on October 11, 2012. The number of effective answer to the questionnaire is 12; 2. The attributes of respondents have some similarities, such as graduated from universities, 20-29 years old, born in Heilongjiang Province, have agriculture-related major, and have agricultural experience because 42% of them are from farm households, 33% of them have relatives or friends in farm households; 3. The highest ratio is marked.

## Conclusions

Based on the aforementioned analytical results, the actual situation and characteristics of HRM in agricultural sector in China can be concluded as follows.

First of all, both quantity and quality of agricultural human resources should be improved against the problems of lack of HRM in agricultural sector and less importance of HRM in agricultural reclamation, especially the low technical efficiency of three state-owned farms in the case study by the method of DEA. Secondly, by introducing a new strategy so-called "BTP" in recent years, agricultural reclamations in Heilongjiang have started to pay more attention to the importance of human resources and cultivating managers. Thirdly, it is clarified from the questionnaire survey that not only material HRM and promotion opportunity but also learning opportunity are important to change the motivation of employees. Finally, diversified corporate culture in the state-owned farms has started to be established for corresponding to the new strategy of HRM by redefining the existing "Beidahuang spirit" in the area.

Therefore, following policy implications can be drawn from the results. Firstly, more attentions should be paid to the scientific and standardized management of human resources such as improvement in the recruitment

and training in addition with material incentives for China's agricultural sector. Secondly, for creating innovation and competitiveness under the progress of globalization, more attentions should be paid to the accumulation of knowledge capital by making agricultural reclamation a learning place as well as social capital by strengthening the relationship with local government and residents.

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