

The Composing of Occupational Standard of Agricultural Tools and Machinery Maintenance - Repair Technicians

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Abstract: Occupational standards developed and adopted in working life has great significance in defining qualifications of the individuals required and needed by working life. Globalization, international integration and increasing competition direct enterprises to rapidly adapt to technological change the firms on agricultural machinery sector in Turkey. Also, importance of the need of that sector's firms for qualified labour force is increasing since today success is more dependant on knowledge. Educating and employing individuals compliant with these standards will realize only after occupational standards are prepared. In this paper, it is aimed to discover that characteristics of Occupational Standard of Agricultural Tools and Machinery Maintenance-Repair technicians by provision of DACUM technic in the scope of the Labour Market Component of the Project of Strengthening the Vocational Education and Training System in Turkey (SVET) in line with the financing agreement that was signed between the Turkey and the European Union. The standard was constituted from, introduction stating the general definitions, tasks and processing, tools-devices and equipment, info and skills, general behaviour and attitude, frequently performed tasks, introductory information on the occupation, people who contributed to development of occupational standard and annexes which includes other necessary drawings.

Key words: Occupational standart, Agricultural tools and machinery technicians, DACUM.

INTRODUCTION

All efforts realized in Turkey in the last years aim to increase international competition power of Turkish economy and unification with the European Union. Rapid globalization process in the 1990's and continuously increasing technological advances and competition for taking more share from international markets have directed countries to develop their human resources. Increasing mobility of workforce as directly related with job changing and job finding ability of employees, making labour market transparent and increasing productivity are predominant features in each incentive related to employment. As it is known, development potential of a country is closely related to qualification of its human resources. In the information society that depends on advance technology, trained workforce increases competitiveness, productivity and quality of production. Thus, training, retraining and lifelong learning processes are very important for protecting and sustaining employment. Today, trained qualified human resources are considered as the most basic competition element for both individuals and firms. Enterprises should produce goods and services in

desired quality standards and in a time that does not have any geographical boundaries if they aim competitiveness. This situation requires high quality workforce. Having high quality workforce is the most predominant characteristics of the enterprises that can adapt themselves to rapid changes. For this reason, a series of initiatives are being realized in order to make training systems in line with labour force demands of enterprises, to equip graduates with the qualifications demanded by enterprises and to increase effectiveness and efficiency of the vocational education and training systems in our country in line with needs of enterprises, to make curriculum and training programs of vocational high schools sensitive to continuously changing labour force needs of enterprises. In these initiatives, there is need for determining quality and quantity of the skill needs of the individuals who will be employed today and in the future, detecting the need in various occupations and skills levels as well as conducting comprehensive and actual studies in order to supply the necessary information. The most important information source in this regard are enterprises. An information

collection system should be developed via workplace surveys, workplace visits or both of them. In this system, collaboration between social parties, employees and employers is very important. It is known that qualifications of workforce is very low in Turkey and unemployment is especially common among individuals who do not have occupational knowledge. A system that will provide the labour force having the quality and quantity demanded by the labour market has vital importance for accelerating economic and social development, increasing welfare and decreasing unemployment. Globalization, international integration and increasing competition direct enterprises to rapidly adapt to technological change the firms on agricultural machinery sector in Turkey. Also, importance of the need of that sector's firms for qualified labour force is increasing since today success is more dependant on knowledge. Educating and employing individuals compliant with these standards will realize only after occupational standards are prepared.

MATERIAL AND METHOD

Occupation standart about the staff, in the sector of agriculture machines and tools in our country is prepared for to contribute employment. With this aim in work, has spoken with 7 firms of selected from leading in sector and has worked with especially qualified technicians. Yet this work has excetuted in the scope of the Labour Market Component of the Project of Strengthening the Vocational Education and Training System in Turkey (SVET) in line with the financing agreement that was signed between our country and the European Union and that took force. In the education meeting 1 job analysis expert from MONE-SVET, 1 academic staff, 2 technical crammers, and 7 experts of job have attend. Meeting has continous about 4 days. After that the rough draft prepared and arranged whit the help of the experts from MoNE-SVET 7 days long.

DACUM analyze system first used in 1969 to developed the education programme. DACUM is the shorted meaning of Developing a Curriculum and can determine ability profile of an occupation by this analiysis method. This consisted profile has provide description of the ability and behaviours which is associated in the occupation. This behaviours are

denote. These behaviors expressed such a way that students and the professionals in agricultural machinery community could understand the materials. The profile has contain a grading scale. The DACUM technic using especially in the following fields (Finch and Crankilton, 1984).

- To determine the necessity of education
- Improving the programmes
- To make occupation definition
- Student-worker evaluation
- Student education and guidance study

Using the DACUM analysis system to preparing on agriculture tools and machinery technicians occupational standart is consist of following phase;

- To determine the programme and occupation
- To determine the ability
- To determine the operation
- To scrutinize the ability and operation
- To arrange in order the knowledge and ability
- To determine the necessity
- To evaluate

RESULTS

The standard was constituted from, book cover, introduction stating the general definitons, tasks and processing, tools-devices and equipment, info and skills, general behaviour and attitude, frequently performed tasks, introductory information on the occupation, people who contributed to development of occupational standard and annexes which includes other necessary drawings. Example of the standart has given in following tables. (Figure 1, Table 1, 2, 3, 4, 5, 6).

The tentative standart will be sent to the companies in this sector, universities and recommended other organizations to ask for their opinions and then it will be revised finally to be sent to all educational institutions.



Figure 1. Book Cover

Table 1. Introduction to standart

II.	Occupation Name: Maintaing and repairing of Agricultural Tools and Machinery.
	Definition of the Staff Member: The staff member has to maintain and repair of the Agricultural tools and machines and has to make mechanical operations and make maintaining and repairing of the hydraulic and pneumatic systems. The staff member must has an ability to solve the problems in a determined period.

Table 2. Tasks and processing

III.	Duties	Tasks						
A	TO ORGANIZE	<table border="1"> <tr> <td>A01</td> <td>To take measures related to worker health and work safety</td> </tr> <tr> <td>A02</td> <td>To pursue the legal necessity arrangement</td> </tr> <tr> <td>A03</td> <td>To be protected from fire</td> </tr> </table>	A01	To take measures related to worker health and work safety	A02	To pursue the legal necessity arrangement	A03	To be protected from fire
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	WORK	A04	To make arrangement of enviroment
		A05	To prepare work program
		A06	To apply customer relations
		A07	To prepare failure establish
		A08	To prepare vehicle delivery record
		A09	To check work of the people working with him
		A10	To assure tools and vehicle
B	TO MAKE MECHANICAL PROPERTIES	B01	To read and draw technical due
		B02	To make marking
		B03	To make cutting
		B04	To lift wood shaving
		B05	To thread
		B06	To make emery
		B07	To make file
		B08	To accustom item
C	TO MAKE WELD PROPERTIES	C01	To weld electrical arc
		C02	To make argon weld
		C03	To make gas weld
		C04	To make ocsi-gas weld
		C05	To make spot welding
D	TO MAINTAIN AND REPAIR OF THE HYDRAULIC SYSTEM	D01	To make cleaning of the hydraulic oil tank
		D02	To make repairing of the hydraulic fitler
		D03	To make repairing of the hydrouic pomp
		D04	To change hydraulic hose
		D05	To make preparing of the hydraulic valves
		D06	To measure the hydraulic pressure
		D07	To make preparing of the hydraulic cylinder
		D08	To make repairing of the hydraulic units
		D09	To make repairing of the hydraulic system's control units
		D10	To change the hydraulic systems pressure control valves
		D11	To make repairing of the hydraulic engines
		D12	To control the oil leaking

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E	TO MAINTAIN AND REPAIR THE PNEUMATIC SYSTEMS	E01	To make compressor care
		E02	To make repairing air tanks
		E03	To maintain and repair of separator unit
		E04	To make preparing of the pneumatic valves
		E05	To make preparing of the pneumatic cylinders
F	TO MAINTAIN AND REPAIR ELECTRIC AND ELECTRONIC SYSTEM	F01	To check battery
		F02	To maintain and repair lightning system
		F03	To change the fuse
		F04	To determine the failure from the machine catalogue
		F05	To comment on the computer failure codes
		F06	To change the relays
		F07	To change the sensors
G	TO MAINTAIN AND REPAIR OF THE AGRICULTURAL MACHINERY	G01	To maintain and repair of the agricultural machineries before starting to work
		G02	To maintain and repair of the tillage equipments
		G03	To maintain and repair of the sowing and seeding machine
		G04	To maintain and repair of the fertilizer
		G05	To maintain and repair of the gravity and overhead irrigation machine
		G06	To maintain and repair of the pest control and plant protection machine
		G07	To maintain and repair of the combine harvesting machine
		G08	To make grease lubrication
		G09	To maintain and repair of the power take-off shaft
		G10	To control of the engine oil
		G11	To maintain and repair of the oil radiator
		G12	To maintain and repair of the cooler sistem's radiator
		G13	To control the hydraulic oil cauldron
		G14	To control and change the filters
		G15	To control the oil level of the differential
		G16	To control the oil level of the gear box
		G17	To cleaning at end of work

Table 3. General attitudes and behaviours

IV.	General Attitudes and Behaviours
1.	Ability of understanding and evaluation
2.	Knowledge on tools, materials and equipments
3.	To be a resurcher
4.	Knowledge on protecting enviroment
5.	To be carefully
6.	Ability of listening
7.	To be honest and reliable
8.	To be in order
9.	Adaptation on workshop
10.	Ability of observation
11.	To manage initiative
12.	To take pains to human relations
13.	Knowledge of work discipline
14.	To pay attention on work safety
15.	To pay attention on quality
16.	Knowledge of deciding
17.	Ability of regidtration
18.	Knowledge of occupation ethics
19.	To be self sacrifice
20.	To be in order
21.	To be patience
22.	To be respectfull
23.	To be coolheaded
24.	To be responsible
25.	To keep one's word
26.	To be precuation
27.	To be coosy
28.	To be trifty
29.	To be harmonious
30.	To be progressive
31.	Use the time well

Table 4. Frequent, difficult and important tasks

V.	Frequent, Difficult and Important Tasks	
	Working team has determined the tasks of occupation and confirmed Frequent, difficult important tasks with a survey.	
	Process No	Regular Operations
	E03	To control the separator
2.	H08	To maintain and repair of the cooler system
3.	G08	To make grease lubrication
4.	I09	To control of whellnut
5.	G14	To control and change the filters
6.	G02	To maintain and repair of the tillage equipments
7.	G10	To control the engine oil
8.	B13	To change impermeability component
9.	B08	To run in the parts
10.	C01	To weld electrical arc
		Difficult Tasks
1.	I03	To maintain and repair of the gear box
2.	I01	To change the cluts
3.	I05	To maintain and repair of the differential gear
4.	D05	To maintain and repair of the hydraulic valves
5.	H02	To adjust of valves
6.	E04	To make preparing of the pneumatic valves
7.	D11	To maintain and repair of the hydroengines
8.	D03	To maintain and repair of the hydraulic pumps
9.	D09	To make repairing of the hydraulic system's control units
10.	E01	To maintain and repair of the compressor
		Important Process
1.	G01	To maintain and repair of the agricultural machines
2.	I01	To change the brake lining
3.	H02	To set the subap
4.	H03	To change the engine oil and engine filter
5.	I03	To maintain and repair of the gear box
6.	H06	To maintain and repair of the turbo charger
7.	B01	To read engineering drawings
8.	H09	To change the revolution pump
9.	D03	To maintain and repair of the hydraulic pump

Table 5. Introductory information on the occupation

VI.	Information On The Occupation
	<p>Agricultural machinery technicians is the man who maintain and repair of the agricultural machines (fertilizer, seeder, tillage equipments..)</p> <p>Agricultural tools and machinery technicians are effect with following work and task in the directions of occupational standarts;</p> <ul style="list-style-type: none"> • To read the scheme of machine, • To determine the spoilt parts of the machine • To change the if it's necessary, • To maintain and repair the spoilt parts • To regulate and test the new parts, • To make the periodic care of the machine.

Table 6. People who contributed to development of the occupational standard

VII.	Name Surname	Association-Company	City
1	Şerif KARAKUŞ (Chairman)	MONE-SVET	Ankara
2.	Ahmet KILIÇKAN	Ankara University Agriculture Faculty	Ankara
3.	Faruk CENGİZ	Türküzü Oğuzhan Tecnical and Industrial Vocation High School	Ankara
4.	Hayati ERGİN	Yerköy Tecnical and Industrial Vocation High School	Yozgat
5.	Mehmet DUMAN	Özdöken Agricultural Machines Company	Konya
6.	Hasan SUVAY	Ertuğrullar Agricultural Machines Company	Burdur
7.	Ruhi ÖZTÜRK	Önallar Agricultural Machines Company	Konya
8.	Şuayip ÜNAL	Altınörs Agricultural Machines Company	Ankara
9.	Faik BİLİCİ	Eker-Mak Agricultural Machines Company	Ankara
10.	İsa KIRILMAZ	Adnan Menderes University Agriculture Faculty	Aydın
11.	Tevfik BEZLİ	Adnan Menderes University Agriculture Faculty	Aydın

CONCLUSIONS

Agriculture sector has an import trace in our country. Increasing the quality and productivity on agriculture depends on the industrial developments and technologies about agricultural machines. So in this progress we need educated and talented individuals. The opportunity of finding a job is easy in the field of farming work. Sixty percent of people are dealing with agriculture in our country. Deficiency of the qualified staff has an important effect on our national income.

After agricultural mechanization, it is necessary to educate qualified technicians to provide maintenance and repair to the agricultural machinery.

Qualified professionals will become important according to the occupation standard in the future. If the occupation staffs are in the event of improve themselves, they will be an qualified staff member on sector (ability of using computer, knowledge of foreign language).

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