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Agricultural Extension Education in Turkish Agricultural Faculties

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ABSTRACT

In this study, Turkish extension education in agricultural faculties was examined by taking the world extension agenda consideration. According to the findings, extension education does not meet necessary the credits, contents, gained roles and skills of graduates. Furthermore, to reach new publications and academic appointments are mentioned as most important problems in the universities. Extension courses focus on the classic topics of theoretical particularly, teacher centered and knowledge transfer based in Turkey. More credit, practical training and participatory curriculum are needed for improving extension education for meeting the developments in agricultural production and education.

Key Words: Agricultural extension; Higher extension education; Extension worker skills

INTRODUCTION

Traditional agriculture education has served production and rural development for the past century. In today's information and knowledge based world, internationally competitive agricultural education therefore cannot be developed without quality education and research (Van der Bor, Bryden, Fuller, 1995; Csaki, 1999). On the other hand, while production remains important, human resource development efforts, became more complex due to the need to integrate "new" issues such as environment, farming systems and the globalization of markets (Whitemore, 1998; Csaki, 1999; Maguire, 2002).

The inadequate training of agricultural extension staff has been identified as the major bottleneck in responding to the ongoing developments (Swanson *et al.*, 1989; Rogers, 1996). Higher education institutions should be able to respond to the growing challenges of internationalization and globalization, and involve all stakeholders, especially students, in their decision-making process and also become fully integrated in local communities (Hoffmann, 1976; Schebel, 1999). Adequate extension education is defined as a planned and systematic effort to increase knowledge, improve skills, inoculate appropriate attitudes and develop other attributes in extension personnel to enable them better serve rural people (White, 1994). The future of agricultural faculties depends on their ability to adapt to changes of a continuously evolving rural life (Sancilio & Ruggiero, 1994).

This research is designed to investigate extension education in Turkish agricultural faculties. The objective of the study was to find out to which extent Turkish extension education complies the development in the world extension agenda. The major research objectives may be mentioned as to examine the characteristics of academics staff, describe the existing situation in extension education, course contents, problems and cooperation with outside the campus and to make some recommendation for improving extension education. Furthermore, the research aimed at testing the following hypotheses as:

- The developments in world extension agenda are have received acceptance in extension education in Turkey
- The extension courses are conducted intensively applied
- The academics staff co-operate closely with outside the university
- The graduates are well-equipped with extension skills

MATERIALS AND METHODS

The research covers all academic staff involved with extension science in agricultural faculties of Turkey. The questionnaire form is sent to 24 agricultural faculties by mail. 37 forms were returned from 15 faculties, in the year 2004. The correspondence showed that extension courses and researches were not conducted in nine of the faculties. The obtained data were grouped according to establishment year of the faculties, age of academic staff and content and description of the extension courses. A score ranging between 1 and 5 was used for some of the variables. In evaluation, 1 represented worst case where as 5 meant the best practice. Besides descriptive statistics factor analysis, chi square test and Mann Whitney U test were employed for detailed analysis.

RESULTS AND DISCUSSION

Establishment years of the faculties. Establishment of Halkali Agricultural School (Istanbul in, 1891) is the milestone of agricultural education in Turkey (Anonymous, 1938). While there were only five agricultural faculties from the foundation of Republic in 1923 to the beginning of 1980s, in the last 20 years, the number has reached to 24 in Turkey. Average age of the faculties is calculated as approximately 25.

Extension education is accepted as a fairly young field of knowledge (Bawden, 1996). In 1929 the University of Wisconsin became the first institutions to offer a graduate course in extension methods. The teaching of communication in connection with agricultural education emerged the 1960s in several European countries. Extension education is based rarely in a department on its own but is located within a larger department (Levander, 2000). Similar situation is valid in Turkey, too. The academic studies on extension were intensified towards the end of 1980s. There is no independent department on extension in Turkish agricultural faculties. The academic studies and courses are conducted by the staff of the department of agricultural economics. 11 of these departments were founded in the last 20 years and the average age of these departments is about 16.

Some characteristics of academic staff. The average age of the academicians, who work on extension science is 41.6. The experience of this staff on extension is approximately 14 years. 42.9% of the participants have PhD on extension science. 67.5% of the staff is male 86.7%, of the academicians spent their life in urban area prior to university education. The academic qualifications of the participants in research are given in Table I.

The computer usage level can be mentioned as quite good but, access to the publications on extension by the participants seems as limited (Table II). According to the course contents, the differences on computer and internet usage levels and course up-dating tendencies of academic staff were found meaningful (Table III). According to the age groups, the differences on PhD topics of academic staff are meaningful. 73.3% of the academic staff, who are lowest through 39 years old have done the PhD study on extension science, the rate is decreasing to 26.7% in the older ones (Table IV). These figures show the increasing importance of extension as a science during the recent years.

The course contents. The workshop organized in 1996 identified three major areas of specialization to be offered with extension education namely extension management, development communication and human resource management and training. Many of the practical social science skills, such as group formation, development of leadership skills, conflict resolution and negotiation between different interest groups, management of common property resources, data collection, using various communication media, analysis and documentation are seen as vital for extension (Sulaiman & Van Den Ban, 2000). The related variables of course content, which were classified in to factors are given in Table V including factor analysis results.

Classical extension topics are being given intensively and theoretically in Turkey (Table VI). Limited number of credits are allocated the applied courses and to the skills of graduates. Difference of course content is meaningful according to the sex groups. Male academicians give more time to new topics in extension in the courses (Table VII).

Table I. Academic qualifications of the participants involved in research on extension

Qualifications		Research assistant	PhD	Assist. Prof.	Assoc. Prof	Professor	Total
	Number	6	2	12	4	13	37
Participants	%	16.2	5.4	32.4	10.8	35.1	100.0

Table II. ICT use and access to new publications by academic staff (%)

Reaching and utilizing levels	1	2	3	4	5	Mean
New publications	13.5	21.6	29.7	29.7	5.4	2.92
Computer usage	2.7	5.4	8.1	24.3	59.5	4.32
Internet reaching	2.7	2.7	5.4	21.6	67.6	4.49
Utilization of internet on extension studies	5.6	11.1	38.9	25.0	19.4	3.42

Table III. Comparison of course contents (Mann-Whitney U Test)

Variables	Groups	number	mean	Sum of Rank	Mann Whitney U	P value
Computer	Classic	24	17.92	430.00	103.500*	0.062
usage tendencies	New	12	19.67	236.00		
Internet reaching	Classic	25	20.84	521.00	104.000*	0.071
level	New	12	15.17	182.00		
Internet utilizing	Classic	24	21.23	509.50	78.500**	0.022
levels	New	12	13.04	156.50		
Course up-dating	Classic	25	21.70	542.50	57.500***	0.002
tendencies	New	11	11.23	123.50		

*** $\alpha<0.01$ ** $\alpha<0.05$ * $\alpha<0.10$

Table IV. Comparison of age groups and PhD topics (Chi square test)

		PhD topics and age groups							
PhD topics	Groups	Lowest thru 39		Highest thru 40		Total		Chi square	Degree of freedom	P value
		N	%	N	%	N	%	5.042**	1	0.025
	Extension	11	73.3	4	26.7	15	100			
	Other	7	35.0	13	65.0	20	100			
	Total	18	51.4	17	48.6	35	100			

** $\alpha<0.05$

Table V. The variables and the groups of course content groups (Factor Analysis)

KMO Measure of sampling adequency	Barttlett's test of chi square	Degree of freedom	P value
0.767	***393.201	78	0.000
Factors	Factor 1	Factor 2	
Variables	Communication, extension aids and methods, programming, monitoring and evaluation, extension organizations , participatory approaches, data collection	Human resources development, group formation, facilitation, leadership, negotiation, dialog	
Clusters	Classic topics	New topics	
Variables for clusters	Data collection and leadership		
Cluster groups	Group1		Group2	
(course-content)	Number	%	Number	%
	19	54.3	16	45.7

*** $\alpha<0.01$

The related hypotheses on course contents as "the developments on extension are reflected to the courses and courses are intensively applied" have been rejected.

Table VI. Course contents and the ways of conducting

Sufficiency levels		1	2	3	4	5	mean
	Classic topics						
Communication skills	theoretical	2.9	-	8.6	45.9	42.9	4.26
	practical	25.0	16.7	27.8	16.7	13.9	2.78
Extension aids and	theoretical	5.7	8.6	17.1	45.7	22.9	3.71
methods	practical	25.7	11.4	45.7	8.6	8.6	2.63
Program planning	theoretical	5.7	14.3	22.9	45.7	11.4	3.43
	practical	25.7	25.7	28.9	17.1	2.9	2.46
Monitoring and	theoretical	2.6	11.4	31.4	28.6	25.7	3.63
evaluation	practical	37.1	22.9	22.9	11.4	5.7	2.26
Extension	theoretical	8.6	11.4	25.7	22.9	31.4	3.57
organizations	practical	31.4	20.0	34.3	8.6	5.7	2.37
Extension	theoretical	5.7	22.9	2.9	31.4	37.1	3.71
approaches	practical	31.4	25.7	22.9	20.0	-	2.31
Participatory	theoretical	17.1	8.6	25.7	20.0	28.6	3.34
methods	practical	40.0	28.6	20.0	8.6	2.9	2.06
	New topics						
Group formation	theoretical	22.9	11.4	25.7	17.1	22.9	3.06
techniques	practical	34.3	25.7	20.0	11.4	8.6	2.34
Facilitation	theoretical	20.0	25.7	17.1	22.9	14.3	2.86
	practical	34.3	25.7	20.0	17.1	2.9	2.29
Leadership	theoretical	22.9	20.0	8.6	31.4	17.1	3.00
	practical	37.1	17.1	20.0	22.9	2.9	2.37
Negotiation and	theoretical	22.9	2.9	31.4	25.7	17.1	3.11
dialog	practical	40.0	17.1	17.1	25.8	-	2.29
Human resources	theoretical	20.0	22.9	31.4	20.0	5.7	2.69
development	practical	48.6	28.6	17.1	2.9	2.9	1.83
Data collecting	theoretical	8.6	2.9	17.1	37.1	34.3	3.86
	practical	22.9	20.0	14.3	31.4	11.4	2.89

Table VII. The course contents and some academician characteristics (Chi square test)

		Course content groups								
		classic		new		total		Chi square	Df*	P value
	Groups	N	%	N	%	N	%	4.900**	1	0.027
Sex	Female	9	81,8	2	18.2	11	100			
	Male	10	41.7	14	58.3	24	100			
	Total	19	54.3	16	45.7	35	100			
		Course content groups								
		classic		new		total		Chi square	Df	P value
	Groups	N	%	N	%	N	%	.801	1	0.371
Age groups	Lowest thru 39	9	47.4	10	62.5	19	100			
	40 thru highest	10	52.6	6	37.5	16	100			
	Total	19	54.3	16	45.7	35	100			
		Course content groups								
		classic		new		total		Chi square	Df	P value
Faculty	Groups	N	%	N	%	N	%	2.289	1	0.130
establishment	Lowest thru 30	12	63.2	6	37.5	18	100			
years	31thru highest	7	36.8	10	62.5	17	100			
	Total	19	54.3	16	45.7	35	100			

*Df: degree of freedom **α<0.05

Table VIII. Course descriptions by regarding to some characteristics

Course description	1	2	3	4	5	Mean
Student- teacher centered	32.4	29.7	21.6	10.8	5.4	2.27
Practical-theoretical based	27.0	37.8	27.0	5.4	2.7	2.19
Problem solving-information gathering based	27.0	37.0	27.0	5.4	2.7	2.19
Facilitation-information transferring based	27.0	45.9	13.5	10.8	2.7	2.16

Course description and characteristics. The courses are defined almost as subject-centered rather than student-centered (Rogers, 1996). A learner-centered model is advocated, where lectures are minimized and participation is maximized and where confidence and capability is built and dependency reduced (Kidd, 1991). The central principle of problem-oriented learning is based on learning though dealing with complex and real problems; problems which have to be defined in detail. Each problem should motivate the student to acquire the relevant knowledge needed for its solution (Schebel, 1999). The problems relate to learning; how can students be helped to develop their own learning skills during their training in such a way that they will be encouraged to continue to learn purposefully and independently after they leave faculty? Learning is viewed as a process of accumulation and internalization of knowledge and skills, which are deposited or stored, to be retrieved at a later date (Rogers, 1996; Luckett & Luckett, 1999).

It must be kept in mind that the shelf life of a subject matter specialist in agricultural disciplines is not more than three years. Likewise the shelf life of extension personnel is not more than five years (Misra, 1991). This reality justifies the necessity of learning to learn and of problem related learning approaches in agricultural and extension education. Consistent with the descriptions of academicians, extension courses are teacher-centered, theoretical and knowledge transfer based in Turkey (Table VIII). The relating variables of course description, which were classified in to factors are given in Table IX including factor analysis results. Course characteristics and conducting ways are meaningful between the age groups. Based upon the answers, the conducted courses by lowest through 39 groups are described as teacher centered (Table X). Experience levels of academicians are thought to exert an effect on the results.

Teaching ways in extension courses. Although one-way instruction based on book knowledge of foreign origin, the application of which is expressed dangerous, would be replaced by collaboration between equals (Dumont, 1976), extension teaching is conducted as primarily classroom lectures and time-honored, exam and reports for evaluation, with little on-farm or other experiential learning (Leiblein, Francis, King, 2000). The participants have stated the shares of the course conducting ways as classroom lecturing (63%), classroom applications (33.1%) and field studies (3.9%). Though, extension is an applied science, the field level applications have a very limited share during courses. The most important reason of this situation is the limited credits for extension in agricultural education.

Up-dating of course content is not intended in the faculties. As said by the participants, efforts for raising academic level and low motivation reduce the content up-dating by academic staff. As known, the agricultural education is focused on what information will be transferred rather than how information should be transferred to the rural people. This tendency causes to neglect the importance of extension courses in education. While in the undergraduate program in agriculture, 5% of the time is used for extension courses in some countries (Sulaiman & Van Den Ban, 2000), average time allocated to extension courses is less than 2% of the total curriculum in Turkey. This share obstructs the satisfaction levels in extension courses in agricultural faculties (Table XI). According to the

course content groups, up-dating and efficiency of extension studies in the regions are different. New topics group updates and exert an effect on the regional extension activities more frequently than the classic group (Table XII).

Cooperation with outside the university. Traditionally, academic programs and curricula are conceived, developed and controlled by universities with very little or no input from the outside community (Zinnah, Steele, Mattocks, 1999). A rigid structure with divisions between departments is criticized because of being in isolation from each other. Often found on the same campus, or in the same buildings, these departments are primarily connected by the plumbing and electrical systems (Leiblein, Francis, King, 2000). On the other hand, today, farmers receive information from multiple services and the agricultural university is a minor player in the major decision-making process on farms. In providing an effective education, traditional higher agricultural education will have to work in cooperation with other sectors and stakeholders that have an interest in issues related to rural areas and should urgently become more open and inclusive, flexible, responsive to the demands of individuals and communities (Schiebel, 1999; Maguire, 2002). The findings show that the academicians have limited links with outside the university.

During extension studies academic staff communicates with other actors poorly, and their affect on extension programs of extension organizations is weak (Table XIII). According to the age groups, contacting tendencies of academicians with the other actors are meaningful. Older participants have more contact with outside the university (Table XIV). Participants make links with the other actors mainly in two ways, as inviting the extension workers from public extension services for conferencing in the courses (77.8%) or lecturing in service training of extension workers (22.2%). The participants suggest forming a regular linkage mechanism (77.8%), conducting action researches (13.6%) and legal regulations (13.6%) for improving the communication between the academicians and other actors. The hypothesis that "the academicians cooperate strongly with outside the university" was rejected.

The problems in extension education. The problems associated with higher agricultural education have been mentioned as low levels of funding, declining quality of research and teaching, inappropriate curricula for labor market needs, isolation from mainstream academia, external partnership, weak incentives for quality staff performance or retention, political interference with management and administration, an absence of guiding policies (Maguire, 2002). As said by the participants, accessing new publications and academic appointments are the most important problems in the universities besides above stated problems (Table XV).

Extension skills of graduates. Information is the most important part of agricultural production and extension activity in today's knowledge based world. The key for an effective functioning of the extension service in the future is to get the changes timely and immediately set up new plans for farmers' training and information (Harriman & Daugherty, 1992; Klair, Boggia, Richarson, 1998). The optimal value of information for agriculture will be best achieved by producers, agribusiness and educators as they improve their agronomic knowledge and skills, computer and information management skills, understanding of agriculture as a system for increasing knowledge (Kitchen *et al*., 2002). Agricultural education and competency-based

Table IX. The variables and the groups of course description groups (Factor Analysis)

KMO Measure of sampling adequency	Barttlett's test of chi square		Degree of freedom		P value
0.778	***71.985		6		0.000
Factors	Factor1		Factor2		Factor3
Variables	Student-teacher centered, practical-theoretical, Problem solving-information based, Facilitation- information transfer				
Clusters	Course-description				
Variables for clusters	Student-teacher centered, Problem solving-information based				
Cluster groups	Group1		Group2		
(Course-description)	Number	%	Number	%	
	26	70.3	11	29.7	

*** α<0.01

Table X. Course characteristics and age groups (Chi square test)

		Course description and age groups								
	Groups	Lowest thru 39		40 thru highest		Total		Chi square	Df*	P value
Course description		N	%	N	%	N	%	4.521**	1	0.033
	Teacher	17	65.4	9	34.6	26	100			
	Student	3	27.3	8	72.7	11	100			
	Total	20	54.1	17	45.9	37	100			
	Age groups and the approaches in conducting courses									
	Groups	Lowest thru 39		40 thru highest		Total		Chi square	Df*.	P value
Course conductance		N	%	N	%	N	%	4.375**	1	0.036
	theoretical	16	66.7	8	33.3	24	100			
	Practical	4	30.8	9	69.2	13	100			
	Total	20	54.1	17	45.9	37	100			

*Df: degree of freedom **α<0.05

Table XI. The credits and up-date of extension courses

Thoughts and sufficiency levels	1	2	3	4	5	mean
Are the credits of extension courses enough?	35.1	21.6	27.0	10.8	5.4	2.3
Do colleagues consider extension as important?	8.1	37.8	37.8	13.5	2.7	2.7
Do extension courses are updated regularly?	-	11.1	55.6	11.1	22.2	3.4

Table XII. The course content groups and thoughts on extension studies (Mann-Whitney U test)

Thoughts	Groups	No.	Mean	Sum of Rank	Mann W. U.	P value
Are the credits of extension courses enough?	Classic	24	17.42	424.00	63.000***	0.002
	New	12	20.64	242.00		
Do extension courses are up dated regularly?	Classic	23	19.57	450.00	77.500**	0.014
	New	12	15.00	180.00		
Do extension studies affect on regional extension activities?	Classic	24	18.90	453.50	97.000*	0.054
	New	12	17.71	212.50		

*** α<0.01 **α<0.05 *α<0.10

Table XIII. The actors and relation levels during extension studies

Actors and relation levels	1	2	3	4	5	Mean
Public extension services	13.9	30.6	25.0	16.7	13.9	2.86
Non governmental organizations (NGO)	25.0	38.9	25.0	5.6	5.6	2.28
Private organizations	38.9	19.4	22.2	13.9	5.6	2.28
Others (universities, abroad etc.)	47.2	16.7	19.4	13.9	2.8	2.08
Do extension studies affect on regional extension activities?	32.4	37.8	27.0	2.7	-	2.00

Table XIV. Age groups and actor cooperation during extension studies (Chi square test)

Cooperation with public extension services and age groups									
		Lowest thru 39		Highest thru 40		total		Chi square	Df*	P value
Cooperation with public extension services	Groups	N	%	N	%	N	%	4.410**	1	0.036
	insufficient	12	75.0	4	25.0	16	100			
	Sufficient	8	40.0	12	60.0	20	100			
	Total	20	55.6	16	44.4	36	100			
Cooperation with private organizations and age groups										
		Lowest thru 39		Highest thru 40		total		Chi square	Df	P value
Cooperation with private organizations.	Groups	N	%	N	%	N	%	5.143**	1	0.023
	insufficient	15	71.4	6	28.6	21	100			
	Sufficient	5	33.3	10	66.7	15	100			
	Total	20	55.6	16	44.4	36	100			

*Df: degree of freedom **α<0.05

training are essential for building the human resource capacity in developing countries in order to improve agricultural productivity and to management natural resources for sustainable development (Crowder, 1999). There is a shortage of well-trained agricultural extension staff in many countries and less in many developing countries this is a strategy should be implemented for human resources development in agricultural extension (Zinnah, Steele, Mattocks, 1999).

The academic staff thinks that, extension skills of graduates are insufficient for field level extension works and skills are seemed as far from the main stream of world extension agenda. The graduates must attend the pre-service training for performing the extension activities properly in case of appointment in an extension organization. Unfortunately, information levels of graduates about rural people and life are evaluated as insufficient by the academicians (Table XVI). These findings lead to the rejection of the related hypothesis on "The graduates are well-equipped with agricultural and extension skills". The lack of practical applications and communication with rural areas during the courses are stated as the reasons of the low qualification levels of graduates by academicians. Especially, the student profile shows urban origins in agricultural faculties (Yurdakul ve ark, 1996) increase the problems.

The functions of graduates are interpreted differently by the age and course content groups. According to the lowest through 39 age and classic topics groups, the functions of graduates are stated as experts, which focusing on technical information and trusting that, farmer knowledge was limited to farming. Older age group and new topics groups define the functions of graduates as facilitators, which give more places for human resource development besides technical matters and empowering rural people (Table XVII). The experience and following the developments in world extension agenda are important factors for the interpretations. Teacher-centered group also assumes the role of graduates as expert. The philosophy and approaches of this group create the dependent actors and does not give enough places for human resource development in the courses (Table XVIII).

Table XV. Problems on extension studies and education

Problems	1	2	3	4	5	mean
Financial lackness	10.8	10.8	10.8	16.5	51.4	3.86
Declining the quality of research	5.4	2.7	37.8	35.1	18.9	3.59
Problems on participating in seminars	2.7	18.9	32.4	24.3	21.6	3.43
Accessing new publications	8.1	32.4	32.4	10.8	16.2	2.95
Low student motivation	2.7	2.7	13.5	37.8	43.2	4.16
inappropriate curricula for labor market needs	2.7	16.2	10.8	40.5	29.7	3.78
Inappropriate cooperation with other departments	8.1	13.5	24.3	29.7	24.3	3.49
Limited communication with rural area	2.7	10.8	-	27.5	59.0	4.30
Inappropriate relations with outside the campus	2.8	8.3	16.7	22.2	50.0	4.08
Related academic appointments	16.2	21.6	18.9	24.3	18.9	3.08

Table XVI. Some thoughts of academicians on extension skills of graduates

Thoughts about graduates	1	2	3	4	5	mean
Functions (expert-facilitator)	19.4	33.3	33.3	8.3	5.6	2.47
The extent of growing up good extensionist	18.9	37.8	40.5	2.7	-	2.27
The sufficiency extent of knowledge and skills levels	2.9	48.6	28.6	20.0	-	2.66
Computer usage skills	5.7	25.7	48.6	17.1	2.9	2.86
Communication skills	11.4	31.4	37.1	20.1	-	2.66
Knowledge levels on farmers and rural life	42.9	28.6	25.7	-	2.8	1.91
Can they serve without pre-service training?	40.5	35.2	24.3	-	-	1.84

Table XVII. Some thoughts of academicians on functions of graduates (Chi square test)

Age groups and functions of graduates										
		Lowest thru 39		40 thru highest		total		Chi square	Df*	P value
Functions of graduates	Groups	N	%	N	%	N	%	5.355**	1	0.021
	Expert	14	73.7	5	26.3	19	100			
	Facilitator	6	35.3	11	64.7	17	100			
	Total	20	55.6	16	44.4	36	100			
Course content groups and skill sufficiency levels of graduates										
		Insufficient		Sufficient		total		Chi square	Df*	P value
Course contents	Groups	N	%	N	%	N	%	6.556**	1	0.010
	Classic	6	31.6	13	68.4	19	100			
	New	12	75.0	4	25.0	16	100			
	Total	18	51.4	17	48.6	35	100			

*Df: degree of freedom **α<0.05

Table XVIII. Course descriptions and function of graduates

Variable	Groups	N	Mean	Sum of rank	Mann Whitney U	P value
Function of graduates expert- facilitator	Teacher centered.	20	15.48	209.50	99.500**	0.044
	Student centered	16	22.28	359.50		

**α<0.05

CONCLUSIONS AND RECOMMENDATIONS

The developments in agricultural production systems and training facilities call for reshaping the agricultural extension education. The value of the reshaping of agricultural extension education has come more significant as result of the increasing interrelated actor based agricultural knowledge systems (Choudhary, 1991). According to Sulaiman and Van Den Ban (2000) the changes needed for reshaping the curricula are; from building-block curricula, where students receive the knowledge that the teachers believe they need to know, to integrated curricula, where students learn how to deal with the "real world" agricultural and rural situations through their experiential involvement with then and though their integration of theories, values and beliefs into appropriate practices (Bawden, 1996).

Participatory curriculum development (PCD) (Rogers, 1996) is another component emphasized for improving extension education, which contains a process of extensive consultation, not only with the academic staff, but also with past students, and indeed all those who are in a way engaged in the activity or who will come into contact with the extension staff, including farmers.

Although the study was limited with extension course but the recommendations are thought to be valid for agricultural education at university level, also. First of all, European Union and the world agenda must be taken into consideration during the curriculum development and course content improvement processes in Turkey. It will cause to integration with the global academic community and internationalization of curricula in higher agricultural education. Regarding the world developments and the research findings, other recommendations on improving extension education can be summarized as below:

- Increasing time allocated for extension courses in curriculum,
- Conducting the courses with practical applications, and rural areas must become classroom for the students,
- More places must be given for human resource development, besides technical dimensions,
- Cooperation with outside the university such as public, private, non-governmental organizations, local administrations, etc. are required for creating participatory environment in academic life,
- Joint efforts of academicians and outside the campus for describing and regulating the course content as indicated by real life priorities and requirements,
- Regular analyzing the changing job market for creating graduates with intended skilled,
- Training programs must be based on not only knowing but also on doing in agricultural education,
- Teaching "learning to learn" must be accepted as a philosophy of extension education.

All mentioned recommendations are directed to reshape the roles and philosophy of agricultural and extension education, which comprise facilitating and empowering the skills of students and establishing a dynamic and integrated university structure. It is expected that, the suggested transformation on training will also reflect itself on the employed extension and development approaches at the field level of country.

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REFERENCES

Anonymous, 1938. Turk Ziraatine Bir Bakis, Birinci Köy ve Ziraat Kalkınma Kongresi Yayini, Devlet Basimevi, Istanbul, p: 304

Bawden, R., 1996. *A Learning Approach to Sustainable Agriculture and Rural Development Reflection from Hawskesbury*, Pp: 19–29. Training for Agriculture and Rural Development Series no: 54

Choundhary, 1991. Training strategy for promoting rainfed agricultural technology in India, Rainfed Extension Strategies for Rainfed Agriculture, *In*: Prasad, C. and P. Das (eds.), *Indian Society of Extension Education,* Pp: 76–97. New-Delhi, India

Crowder, Van L., 1996. *Human Resources and Institutional Capacity building through Agricultural Education,* FAO, Sustainable Development Department, htt:p://www.fao.org/sd/Exdirect/Exan0015.htm, Sustainable Development Department, March

Csaki, C., 1999. Agricultural higher education in transforming Central and Eastern Europe. *Agric. Econo.,* 21: 109–20

Dumont, R., 1976. *Training for Rural Development the Gulf Between Farm and Town, Training for Agriculture and Rural Development*, Pp: 15–22. FAO, Economic and Social Development Series, No: 2

Harriman, L.C. and R.A. Dougherty, 1992. *Staffing extension for the 21st Century*. http://www.joe.org/joe/1992winter/fut1.html, winter, Vol: 30 number, 14

Hoffmann, H.K.F., 1976. *University-level Education in Agriculture a Perspective for the Year 2000, Training for Agriculture and Rural Development*, Pp: 44–53. FAO, Economic and Social Development Series, No: 2

Kidd, D.W., 1991. Innovative practical rainfed training: suggestions for rural trainers, Rainfed Extension Strategies for Rainfed Agriculture, *In*: Prasad, C. and P. Das (eds.), *Indian Society of Extension Education,* Pp: 258–78. New-Delhi, India

Kitchen, N. *et al*, 2002. Educational needs of precision agriculture. *Precision Agric.*, 3: 341–51

Klair, K., A. Boggai and D.W. Richardson, 1998. *The Changing Information Needs of Farmers in the US and Europe*, Sixth Joint Conference on Food, Agriculture and the Environment, Minnesota, August 31-September 2

Leiblein, G. King J. and C. Francis, 2000. Conceptual framework for structuring Future Agricultural college and Universities in Industrial Countries. *J. Agric. Educ. Extens.,* 4: 213–22

Levander, L.M., 2000. Exploring the curricula of extension education at some European Universities. *J. Agric. Educ. Extens.*, 1: 47–55

Luckett, S. and K. Luckett, 1999. Developing reflective development practitioners through an action-learning curriculum: problems and challenges in a South African context. *J. Agric. Educ. Extens.,* 3: 171–88

Maguire, C., 2002. *Changing expectations for higher agricultural education*, P: 8. IIEP Newsletter, October-December

Misra, D.C., 1991. Extension training strategy for training extension personal for rainfed agriculture in India, Rainfed Extension Strategies for Rainfed Agriculture, *In*: Prasad, C. and P. Das (eds.), *Indian Society of Extension Education*, Pp: 299–321. New-Delhi, India

Rogers, A., 1996. *Participatory Training Using Critical Reflection an Experience in Agricultural Extension Training, Training for Agriculture and Rural Development*, Pp: 86–103. FAO, Economic and Social Development Series No: 54 Rome

Sancilio, C. and G. Ruggierio, 1994. The role of agricultural engineering teaching with the agricultural environment relationship in Italy, *European J. Agric. Educ. Extens.,* 2: 81–6

Schiebel, W., 1999. Building an education strategy. *J. Agric. Educ. Extens.,* 3: 189–94

Sulaiman, R. and A. Van den Ban, 2000. Reorienting agricultural extension curricula in India. *J. Agric. Educ. Extens.,* 2: 69–78

Swanson, B.E. *et al*, 1989. The current status of extension worldwide, *In*: Swanson, B.E. (ed.), *Global Consultation on Agricultural Extension*, Pp: 43–76. FAO, Rome, Italy

Van der Bor, Brydan. M.J. and A.M. Fuller, 1995. Rethinking higher agricultural education in a time of globalization and rural restructuring. *J. Agric. Educ. Extens.*, 3: 29–40

White, J., 1994. Responding to change: a new role for agricultural colleges in England and Wales. *J. Agric. Educ. Extens.,* 2: 49–64

Whitemore, C.T., 1995. Teaching interpersonal and transferable skills to students of agriculture: a case study. *J. Agric. Educ. Extens.,* 4: 87–106

Yurdakul, O. ve ark., 1996. Ziraat fakultelerinde tarım ekonomisi bolumleri ogrencilerinin ziraat muhendisligi ogrenimine yonelik dusunce ve beklentileri, Turkiye II. Tarim Ekonomisi Kongresi, 4–6 Eylul, Adana, Cilt 1 14–24s

Zinnah, M.M., R.E. Steele and D.M. Matlocks, 1999. *From Margin to Mainstream: Revitalization of Agricultural Extension Curricula in Universities and Colleges in Sub-Saharan Africa*, FAO, htt:p://www.fao.org/sd/Exdirect/Exan0027.htm, Sustainable Development Department, February

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