

# Education for Family Farms and Gender Aspects in Croatia

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## Summary

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Authors discuss the educational structure in Croatia and education of family farm members. The points of this research are lack of formal education in farm occupation and specific gender issues. Along with education levels of all population in Croatia that has been improving since WW II the agricultural population was following this trend but much slower. In farming occupation persons are in general less educated than in non farming occupations what is also related to gender aspect. Since very few studies in Croatia concern education of farmers, and rare respect gender issues in education, our paper tried to highlight specifics regarding these two topics. From our research it is evident that women on family farms are educated mainly for non-agricultural occupations compared to men who have agricultural education two times more than women. Correlation analysis showed highly related connections of age, education and family size to knowledge about farm tasks. Younger, more educated women have more knowledge about “modern” farm tasks like bookkeeping, laws and taxes and selling agricultural products, while older and less educated have more knowledge about “traditional” tasks like gardening, plant growing and animal breeding. Knowledge about mechanized work was graded as lowest among other farm tasks because it was seen as a masculine task and of no interest for women. Knowledge about “modern” tasks is necessary for market oriented farm business in this light woman’s education becomes a limitation, therefore the non formal (extension service) and formal education systems (secondary and tertiary) should introduce new programmes and subjects to farm and household economics.

## Key words

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education, family farms, Croatia

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## Introduction

### Education for agriculture in Croatia

In spite the fact that basic education is obligatory in Croatia and contains the necessary aim of improving life circumstances and degrade poverty, children in rural areas face more difficulties in reaching education institutions, and education quality is lower comparing to urban areas (Ilak Peršurić, 2005b;165). That is the reason why we wanted to put light on this problem and created this paper. Low quality of education refers to several aspects: a) lack of rural life aspects in books and teaching programme, wide programmes that do not use traditional knowledge sources; b) old methods of teaching, which put the teacher in centre and teachers unprepared to use local culture, rural life and economy thematic; c) outdoor activities are relying on teachers capabilities, free time and willingness to have them, also limited by public transport in afternoons of children who live in rural settlements and have to travel to school (Ilak Peršurić and Gautier, 2005a;166). As basic education is compulsory and owing that every fourth Croatian village has elementary school, there are no major differences between urban and rural areas regarding enrolment. The Ministry of Science, Education and Sports has a policy of keeping the small schools open, regardless of the number of pupils (in rural areas that refers to ten pupils). Education in Croatia is free and available to the whole population as an institutional category under the supervision of the Ministry of Science, Education and Sports. Therefore in theory the rural and agricultural population should not suffer in educational quality because they live in rural areas. However, in the most of villages there is no elementary school what imply additional cost for education (travelling - walking or driving to school) and lower quality (no time for extra activities – sports, arts etc.).

Secondary education system is consisted of grammar, vocational and art schools. Grammar schools last at least four years, and by the curriculum are divided to general and specialized ones. Vocational schools connected to rural and agricultural issues are performed in three and four year's programmes. Educational programmes for lower qualified professions (cattle breeder, florist, phytopharmacist) and technicians (general and specialized) in agriculture are offered in six agricultural and twenty general schools (Ilak Peršurić and Peršurić, 2003b). Most of these schools do not match family farming needs for education in their programmes and they lack infrastructure for practical classes (Ilak Peršurić and Gautier, 2005a;174). We can count the villages in Croatia that have a secondary school on one hand. Therefore rural and farm children are less favoured in secondary education and for farming profession. This situation is not equalized with education institutions only, but reply's on all infrastructure so called technical and social infrastructure (post, bank, healthcare

centre, childcare institution, agricultural and veterinary service, church and schools) in the village and is a consequence of politics neglecting ideologically the village as living space (Štambuk, 2002;159).

Through indicators of education Petak (1989;242) showed that average agricultural population has finished two years of secondary education, while non-agricultural population in average have finished four. Traditional opinion that farmers do not need education was long present; research of Žutinić and Brkić (1994;166) showed that this opinion became more positive toward education in late 80ies of the 20<sup>th</sup> century. These indicators are important as educated farmers are more productive than non-educated; a farmer with four classes of elementary education is 8.7 times more productive than a farmer with no formal education (Gašperini 2000;1). Low levels of formal (scholastic) education negatively affects new technology implementation on farms (Žutinić, 1999;144).

College and university education in agriculture is offered in cities; four College's (Knin, Križevci, Poreč and Požega), two agricultural faculties at universities (Zagreb and Osijek) and one veterinarian (Zagreb) and forestry faculty (Zagreb). Programmes are not appropriate for family farms and the centralised education systems controls budget, staff, programmes and buildings (Paustović, 1996;43).

Provider of non formal education (non scholastic) is principally the Ministry of Science, Education and Sports, through public universities, private companies and NGOs which perform adult non formal education. However, they have very few courses for rural and agricultural issues needed to people in rural areas. In rural areas professional programs, courses and workshops are organized if the number of participants is at least 15 persons (organized usually in formal schools), but no data are available regarding the rural origin of the participants (Ilak Peršurić and Gautier, 2005a;178-179).

The Ministry of Agriculture, Forestry and Water Management has organized the Extension Service which provides non formal education, training and knowledge transfer to farmers. The expenditures of this service are covered by Ministry. Education is given through short courses (one day or several hours) in villages or in smaller municipalities. According to season, experts from Extension Service give lectures on agricultural machinery, sawing, using manure, pesticides and similar. Also on farms with experimental plots they show features of new plant and animal varieties, new technologies etc. From field research (Magdalenić et al., 1994;141) farmers were unsatisfied with the Service because it is situated in towns or distant places so farmers have to waste productive time in travelling. Farmers expect more knowledge and answers about farm economics (marketing - selling and purchasing, fi-

nancing – loans, laws – taxes and regulations) and farm chemicals. Regarding areas of Croatia, continental, hilly and Mediterranean, more than ninety percent of farmers responded that they need knowledge about loans and close to eighty percent responded that they need marketing knowledge (Magdalenić et al., 1994;144).

### Material and methods

This paper is based on a regional approach with high-light on agricultural population and women. We used statistical data from Central Bureau of Statistics – Population Census 1981, 1991, and 2001 and Agricultural Population Census from 2003. Unfortunately, these data is not gender disaggregated, therefore we used research data from the project “Family farms” 1997-2002 on a sample of 400 farms (supported by the Ministry of Science, Education and Sports). This sample was chosen from the basic group of family farms in Istria County (15,040 farms according to Statistical Census in 1991). Criteria used for group condensation was land use of more than 0.51 ha (because the share of farms with less than 0.51 ha is only 1 percent of all farms and it is marginal regarding agricultural production). Also we used data from research “Socio-economic position of farmwomen” 2002-2005, with a sample of 350 family farms (supported by the Swiss National Science Foundation) chosen from the basic group of 13,534 family farms (according to Statistical census in 2001). A criterion for sampling was land use of over three hectare. The land criterion was raised in 2001 because of profesionalisation and specialisation processes in agriculture through the last decade which demanded more productive land for agricultural production. In both samples we used a questionnaire which had open and closed questions that relied to socio-demography and professional features, agricultural resources and views and opinions about farming occupation. Socio-demographical features were set in age and gender categories, while professional features were set in five levels of education (unfinished basic, basic, secondary, tertiary and post graduate). Land size was graded in five levels (from 3 to 5; 5 to 7; 7 to 10; 10 to 15 and more than 15 hectares of land used). For views and opinions we used a scale of answers that ranged from one to five where five was stated as most important. In description of knowledge about farm tasks the scale was the same, with range where five was excellent knowledge, while one was weak (insufficient) knowledge. Data were processed by standard procedures of univariant and bivariant analyses. The aim of this paper was to show the education structure of family farm members, especially concerning farm women.

#### Overview of the educational structure of Croatian population

In the last forty years of the 20<sup>th</sup> century the educational level was rising through increase of population with

**Table 1.** Croatian population older than 15 years according to finished formal education (in %)

Formal education	1961	1971	1981	1991	2001
No education / unknown	23.7	17.6	14.2	10.1	5.8
Up to 7 grades	53.3	43.6	31.9	21.2	15.8
Basic school	8.6	14.8	19.2	23.4	21.8
Secondary school	12.6	20.4	28.3	36.0	47.1
College	0.6	1.4	2.7	4.0	4.1
University and Art Academies	1.2	2.2	3.6	5.3	5.4
Total (%)	100.0	100.0	100.0	100.0	100.0
Population in thousands	3,028	3,424	3,638	3,858	3,682

Source: Statistical Census; DZS.

**Table 2.** Croatian agricultural population older than 15 years according to finished formal education (in %)

Formal education	1961	1971	1981	1991	2001*
Illiterate	29.4	15.4	11.7	4.5	–
1-3 classes of basic school	–	10.8	12.9	10.2	–
4-7 classes of basic school	–	64.2	58.2	52.9	28.2
Basic school	70.4*	7.8	14.2	22.9	26.2
Secondary school	0.1	1.7	2.8	8.6	39.2
College	0.0	0.0	0.1	0.4	5.6
University	0.0	0.0	0.0	0.3	–
Unknown	0.1	0.1	0.1	0.2	–
Total	100.0	100.0	100.0	100.0	100.0
Population in thousands	1,824	1,211	667	468	528

\* data for finished four year education, source: Ph.D. paper theses Žutinić, Đ. 1996 pp.34; DZS 2001. In 2001 the EU criterion was used: agricultural population was counted in spaces with less then 100 inhabitants/km<sup>2</sup>. There are no specified data about the illiterate persons and persons with unknown education; unfinished basic education (1-3 and 4-7 classes) was counted together, college and university education also. # Project Family Farms 1997-2002.

higher levels of education and lower share of population with unfinished basic education. According to finished formal education shown in Table 1, Croatia still has a large share of population without finished basic education, however this share has decreased from 77 percent in 1961, to 31.3 percent in 1991 and to 21.6 percent in 2001. During the same time frame the number of people with university education has doubled, twenty per cent more people have finished secondary education, while the number of people with no education and unfinished elementary school is three times less.

During the 20<sup>th</sup> century the level of education of agricultural population raised from the point where every third person was illiterate to the point of no illiteracy at all (Table 2). Also the share of population with unfinished basic education was cut in half (70.4 percent in 1961). Significant increase was achieved in secondary education, so in 2001 almost 40 percent of agricultural population

had finished secondary education. Still the share of agricultural population with tertiary education is below the whole population rates.

### Overview of education on family farms

From latest statistical data, Agricultural Census 2003, (Table 3) we have data about agricultural education – secondary and tertiary, from which we can only estimate educational structure. It shows agricultural education only and that for the first eight members of household (therefore a person could have university education in non-agricultural occupation, but the Census count them as member with practical experience only). In Croatia of all agricultural households (448,532) there are about a million members (969,753 persons) with only practical experience in agriculture, while only 3,905 have an university degree in agriculture; 12,405 finished agricultural secondary education and 2,480 have some kind of training course in agriculture.

## Results and discussion

### Education on family farms and gender specific aspects

Rural population and the farming population are in general less educated than urban population. Farm occupational knowledge responds in traditional ways of generational knowledge transfer (Žuljić 1994;46). Education of agricultural population and farm population in recent decades was a way of deagrarization (process of leaving agriculture as main income source and leaving the village as place of residency). Two ways of deagrarization were non agricultural occupations and non agricultural employment (Puljiz 1997;121). Farmers tend to educate themselves less than other (Puljiz 1997;123) and have traditional views toward education (Žutinić 1994;171). Therefore, farming as an occupation is handicapped with education in general and lacks occupational knowledge.

There are no gender disaggregated statistical data about farm families and education in the Statistical Census, therefore we used available data from research. Data in Tables 3 to 6 were collected on 350 farms, from the field research “Socio-economic position of farmwomen” 2002-2005.

On the farm sample (Table 3) we noticed a better educational structure comparing to the educational structure of agricultural population considering secondary and tertiary education, while the sample was still behind the educational structure of the whole population in Croatia. Women tend to be less educated than men; two thirds of women have finished less than eight classes (which are obligatory), twice less comparing to men. In this group there are many older women which social roles detached them from education; the family pressure and expectations to

**Table 3.** Farm population older than 15 years according to finished formal education

Formal education	Total		Women		Men	
	%	N	%	N	%	N
1-7 classes of basic school	18.3	245	26.5	169	10.8	76
Basic school	43.0	577	37.3	238	48.6	341
Secondary school	34.3	459	32.0	205	36.2	254
College	2.4	32	1.4	9	3.2	23
University and Art Academies	2.0	27	2.8	18	1.2	9
Total	100.0	1,340	100.0	639	100.0	701

Source: field research Socioeconomic position of farmwomen 2002-2005.

**Table 4.** Farm members according to type of school

Type of school	Total		Women		Men	
	%	N	%	N	%	N
Technical	4.4	12	2.6	6	2.1	6
Economic and service	31.3	163	43.0	101	21.7	62
Industrial and craft	14.0	73	5.1	12	21.3	61
Agricultural	30.3	158	19.1	45	39.5	113
Gymnasium	22.0	115	30.2	71	15.4	44
Total	100.0	521	100.0	235	100.0	286

Source: field research Socioeconomic position of farmwomen 2002-2005.

**Table 5.** Women’s knowledge about farm work

Knowledge mark	Mean value	Weak (%)	Fine (%)	Excellent (%)	Total (%)
Traditional tasks					
Plant growing	4.13	6.7	12.5	80.8	100.0
Animal breeding	3.97	9.7	16.4	73.9	100.0
Land management	3.85	7.8	22.7	69.5	100.0
Manure	3.43	16.1	38.6	45.3	100.0
Plant protection	3.39	16.0	39.2	44.8	100.0
Gardening	3.38	13.5	44.4	42.1	100.0
Modern tasks					
Selling agricultural produce	2.87	57.4	12.5	30.1	100.0
Laws and taxes	2.74	66.3	12.5	21.2	100.0
Bookkeeping	2.74	61.7	11.9	26.4	100.0
Mechanization	2.52	66.9	18.6	14.5	100.0

Source: field research Socioeconomic position of farmwomen 2002-2005.

leave home and get married forced women to leave their native home without fulfilled need for education.

Women’s attitudes toward education and estimation of farm tasks knowledge

There are few studies about the relation of masculinity and farming (Brandth, 1995; Liepiens, 2000; Peter et al., 2000; Saugures, 2002). Women farmers are breaking

**Table 6.** Correlations of farmwomen's age, education and land size with educational features

Dependent variable	X <sup>2</sup>	df	p	Cc
			Independent variable: Age	
Education level	12.5	18	0.000	0.515
Education type	22.2	12	0.045	0.388
Is education important for women	74.5	18	0.000	0.420
What kind of professional training you attend	81.6	20	0.047	0.617
Which level of education is necessary for farmers today	69.5	30	0.002	0.409
Is transfer of practical knowledge important for farmers	51.2	24	0.001	0.358
Are practical skills more important than scholastic knowledge for farmers	38.4	18	0.003	0.316
Grades of knowledge about agricultural production	72.3	24	0.000	0.417
Grades of knowledge about plant growing	82.1	20	0.002	0.352
Grades of knowledge about bookkeeping	57.7	24	0.000	0.455
Grades of knowledge about land management	89.9	18	0.000	0.379
Grades of knowledge about marketing (selling/buying)	51.3	20	0.003	0.371
			Independent variable: Education	
Education level	37.4	12	0.014	0.312
Education type	24.5	11	0.016	0.421
Is education important for women	88.3	15	0.017	0.452
What kind of professional training you attend	166.2	15	0.025	0.569
Which level of education is necessary for farmers today	51.1	9	0.008	0.368
Is transfer of practical knowledge important for farmers	95.5	12	0.001	0.464
Are practical skills more important than scholastic knowledge for farmers	9.2	9	0.001	0.162
Grades of knowledge about agricultural production	107.9	12	0.002	0.492
Grades of knowledge about plant growing	99.0	12	0.000	0.474
Grades of knowledge about bookkeeping	93.5	12	0.000	0.463
Grades of knowledge about land management	62.1	9	0.000	0.392
Grades of knowledge about marketing (selling/buying)	41.3	10	0.000	0.512
			Independent variable: Land size	
Education level	24.4	12	0.015	0.359
Education type	16.1	12	0.196	0.338
Is education important for women	34.7	12	0.104	0.301
What kind of professional training You attend	42.1	16	0.000	0.409
Which level of education is necessary for farmers today	82.9	20	0.000	0.440
Is transfer of practical knowledge important for farmers	36.8	16	0.002	0.309
Are practical skills more important than scholastic knowledge for farmers	35.0	12	0.001	0.303
Grades of knowledge about agricultural production	10.7	16	0.174	0.635
Grades of knowledge about bookkeeping	43.0	12	0.097	0.335
Grades of knowledge about land management	89.9	18	0.000	0.379
Grades of knowledge about marketing (selling/buying)	48.2	15	0.005	0.452

Source: field research Socioeconomic position of farmwomen 2002-2005.

traditional boundaries and gender division of labour by driving trucks and using heavy machinery. In modern farming tractor stands as a symbol of masculine power (Brandth, 1994; 1995). Girls usually grow up without being expected to be attracted to tractors and mechanization. Many studies suggest that agricultural knowledge and training are predominantly male-dominated (Haugen, 1990; Mackenzie, 1994; Shortall, 1996) and the curricula privilege the work most frequently done by men (Van den Burg, 1994; Shortall, 1996).

Many young farm girls went to non-agricultural schools to educate for non-agricultural jobs that offered economical independence (Table 4). We must point out that the process of farm inheritance was unfavourable to young women. Farm's are still nowadays handed forward to sons, while daughters are considered successors only if no male

is available (or are not interested in succession). According to recent data about 90% of family farm will be handed over to male successors (Ilak Peršurić, 2001).

When we asked women how they gained their knowledge in agriculture 95.5 per cent told us that the family members taught them how to work on the farm through practical experience. Only 4.5 per cent women were relying upon public information (radio, TV and publications). Therefore two third of women stated that practical experience is more important than scholastic knowledge for farming. Our sample has shown trans generational knowledge transfer as seen in other field research in Croatia (Žutinić, 1996; Puljiz, 1997; Žuljić, 1994).

We asked women to grade their knowledge about farm tasks (the scale of answers ranged from 5 as excellent to 1 as inadequate). The knowledge about plant growing and

animal breeding was the highest (Table 5). Specific knowledge needed today in modern farming such as bookkeeping and selling products were rated as the lowest. Knowledge about agricultural machines was the lowest graded by women. The reason of this is that mechanized work is considered a masculine (farmer's) job and women are handing this task to male family members.

For explaining the reasons of gender differences in education we used correlation analysis from which we noticed that age and farm size had significant influence on attitudes toward education and knowledge in general. In our sample of 350 family farms we have noticed that younger women (under 30) are the ones with highest education – University and College ( $X^2=12.5$ ,  $df=18$ ,  $p=0.000$ ,  $Cc=0.515$ ). Education was more important for this age group than for older groups ( $X^2=74.5$ ,  $df=18$ ,  $p=0.000$ ,  $Cc=0.420$ ).

Women on farms with more than 7 ha land graded their knowledge higher than women on smaller farms ( $X^2=43.5$ ,  $df=16$ ,  $p=0.045$ ,  $Cc=0.335$ ). The bigger the farm was the more women gained tertiary education ( $X^2=24.4$ ,  $df=12$ ,  $p=0.015$ ,  $Cc=0.359$ ).

Correlations between levels of education and personal estimation of knowledge about farm tasks were strong ( $>0.4$ ). In general terms women with tertiary education graded their knowledge higher comparing to less educated women. Levels of education were strongly connected to knowledge about plant growing ( $X^2=99.0$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.474$ ), land management ( $X^2=62.1$ ,  $df=9$ ,  $p=0.000$ ,  $Cc=0.392$ ), bookkeeping ( $X^2=93.5$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.463$ ), laws and taxes ( $X^2=23.3$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.637$ ) and selling agricultural products ( $X^2=12.1$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.512$ ).

We noticed significant correlations between level of education and farm tasks that women perform. Higher levels of education lead to less knowledge about “traditional” farm tasks and more knowledge about “modern” farm tasks ( $X^2=68.3$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.366$ ). The higher the education level, the more women actually work on “modern” farm tasks: selling agricultural products ( $X^2=38.6$ ,  $df=12$ ,  $p=0.001$ ,  $Cc=0.185$ ); bookkeeping ( $X^2=50.7$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.286$ ) and using knowledge about taxes and laws ( $X^2=46.7$ ,  $df=12$ ,  $p=0.000$ ,  $Cc=0.284$ ).

Also we asked women how often they perform some farm tasks and measured the connection with the level of their education. We found out that women with higher education were more involved with “modern” farm tasks: bookkeeping ( $X^2=87.3$ ,  $df=16$ ,  $p=0.000$ ,  $Cc=0.465$ ), applying knowledge in laws and taxes ( $X^2=61.6$ ,  $df=16$ ,  $p=0.000$ ,  $Cc=0.404$ ) and selling agricultural products ( $X^2=87.7$ ,  $df=16$ ,  $p=0.000$ ,  $Cc=0.466$ ). The “traditional” tasks were performed mostly by women with highest knowledge about these tasks (and least formal education). All correlation

was above 0.3. For example one of the traditional feminine tasks, gardening, was connected to knowledge about vegetable production ( $X^2=38.8$ ,  $df=16$ ,  $p=0.001$ ,  $Cc=0.320$ ) and also to knowledge about manure ( $X^2=40.7$ ,  $df=16$ ,  $p=0.001$ ,  $Cc=0.327$ ). Knowledge about animal breeding was connected to work with animals ( $X^2=10.7$ ,  $df=16$ ,  $p=0.000$ ,  $Cc=0.493$ ). Knowledge about bookkeeping was connected with task of selling agricultural products ( $X^2=10.6$ ,  $df=16$ ,  $p=0.000$ ,  $Cc=0.498$ ). Also the more women know about bookkeeping the more they do it ( $X^2=89.1$ ,  $df=16$ ,  $p=0.000$ ,  $Cc=0.467$ ).

## Conclusion

Rural areas in Croatia leap behind urban areas concerning education infrastructure. As only every fourth village has an elementary school and rare have secondary or tertiary education institutions, village children are less in position to gain higher levels of education. For agricultural and farming youth education was often a path out of farming. Our data showed that women on family farms are less educated than men. Women who finished secondary and tertiary education were educated mainly for non-agricultural occupations comparing to men who finished agricultural education twice times more. The social circumstances were influencing women to marry and leave the farm (limited possibilities for farm succession). Therefore non-agricultural education offered more opportunities for women (jobs outside farming). Traditional ways of farm occupation knowledge transfer was evident especially for women with no formal education about farming. Correlation analysis showed highly related connections between levels of education and personal estimation of knowledge about farm tasks. Also strong connections were noticed between age, farm size, education level and knowledge about farm tasks. Younger, more educated women have more knowledge about “modern” farm tasks like bookkeeping, laws and taxes and selling agricultural products, while older, less educated have more knowledge about “traditional” tasks like gardening, plant growing and animal breeding. Knowledge about mechanized work was graded as lowest among other farm tasks because it was seen as a masculine task and of no interest for women. In general terms women with higher levels of education estimated in higher grades their knowledge about farm tasks. Formal agricultural education should concern so called modern farm needs for education such as economics and marketing; implementing new subjects such as agricultural regulations, agricultural tax systems, bookkeeping for farmers and household economics. Non formal education should head toward small groups of farmers with special needs for certain knowledge also in sense of modern tasks.

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