Working paper of ari for the first regional coordination workshop of GEWAMED

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Sagardoy J.A. (ed.), Hamdy A. (ed.), Trisorio-Liuzzi G. (ed.), Lamaddalena N. (ed.), Quagliariello R. (ed.), Bogliotti C. (ed.), Guelloubi R. (ed.).
Institutional coordination and streamlining partners activities in the framework of GEWAMED project

Bari : CIHEAM
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 68

2006
pages 81-86

WORKING PAPER OF ARI FOR THE FIRST REGIONAL COORDINATION WORKSHOP OF GEWAMED

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THE AGRICULTURAL RESEARCH INSTITUTE

The Agricultural Research Institute (ARI) of Cyprus was established in 1962 with a mandate to conduct research on plant and animal production problems, and develop, evaluate and adapt under local conditions scientific findings and technology available from international and regional research institutions. Its broad objectives are to optimize resource utilization, improve plant and animal productivity on a sustainable basis and generate and test improved technology for farmers.

The ARI is a Department of the Ministry of Agriculture, Natural Resources and Environment and is divided into eight research sections: Plant Improvement (Breeding and Genetics), Agricultural Production Systems, Vegetables and Ornamentals, Tree Crops and Viticulture, Animal Production, Soils, Water Use and Environment, Plant Protection (Entomology and Pesticide Toxicology, Plant Pathology and Biotechnology), Agricultural Economics, Biometrics and Information Technology. Each section, consisting of a group of specialists, undertakes programmes in agricultural research that represent a combination of theoretical and applied research. At present, the Institute employs 40 scientists, 70 technicians, a permanent labour force of 72 persons strengthened by seasonal labour based on experimental needs.

The ARI is in close co-operation with the local industrial and commercial units dealing with agricultural means of production and products. Most of the new products (ferilizers, chemicals, irrigation systems, new varieties and hybrids) are tested by ARI before being recommended to the farmers. There is also a wide co-operation with institutions and companies from other countries (FAO, ICARDA, IAEA, IPC, CIHEAM, … etc). The input of ARI in the Euro-Mediterranean Region and in particular in the Middle East Region is substantial. Most of the findings of ARI are accepted and widely used in neighbouring and other countries. In certain aspects like fertigation/irrigation, dryland farming and feeding of small ruminants, ARI is a focus point in the region and scientists of ARI are acting as consultants. The selection of ARI in 2000 by the European Union as Centre of Excellence in Agriculture and Environment is a recognition that reflects the high quality scientific research conducted by the Institute and its contribution to the development of agriculture and the protection of the environment.

The Agricultural Research Institute, is actively involved in many European Programmes of the 5th and 6th Framework Programme concerning the water utilization, wastewater reuse and water management (i.e. WASAMED, NOSTRUM, MEDAWARE, MELIA, GEWAMED) and other programmes that are concentrated information for all horticultural crops of the Mediterranean region (i.e. HORTIVAR of FAO programme).

Recently, particular emphasis was given on gender issues and the contribution of women in Agriculture, organizing an International Conference in cooperation with the EU on "**The New Challenge of Women's Role in Rural Europe**", October 2001. Seventy-five representatives from 26 countries participated in the Conference. The ARI participated at the Workshop on "Gender and Water Resources Management in the Mediterranean" (Egypt, October 2002) and at the Workshop on "Integration of Gender Dimension in Water Management in the Mediterranean Region (INGEDI)", Bari- Italy, June 2004. Finally the ARI in cooperation with the EU organized the European Conference on "**Women and Sustainable Rural Development in Europe**", June 2004, where 25 representatives from 22 countries participated.

The main topics discussed were:
1. Rural policies, Equal opportunities, Decision makings and Rural Women.

2. Rural Women and Sustainable Development.
3. Rural Women Education, Skills, Employment and Female Entrepreneurship.
4. Changes in Rural Society and Rural Women.

AGRICULTURE IN CYPRUS

The agricultural sector exhibited an increase in 2001 compared to the previous years. This is attributed to the favourable weather conditions, which resulted in the increase of the volume of the crop production, mainly for cereals and groundnuts that increased by 165,7%. The value of livestock production maintained the upward trend of recent years, with an increase of 7,6% for 2001.

The total gross output of the broad agricultural sector increased by 12,1% at current prices and reached £375,2 mn in 2001 compared to £334,7 mn in 2000. In real terms, gross output increased by 8,0% compared to the 7,2% decrease recorded for 2000. Specifically, the ancillary production increased by 21,2%, forestry, crops and livestock production recorded an increase of 9,1%, 7,9% and 5,3% respectively while the hunting sub-sector increased by 45,5%.

Employment in the agricultural sector recorded a marginal decrease to 23.400 persons in 2001 compared to 23.966 in 2000. This decrease is attributed to the reduction in some crop products and consequently the decreased demand for labour for agricultural activities. The share of employment in agriculture in relation to the total labour force was 7,1% in 2001, compared to 7,4% in 2000, 8,0% in 1998 and 9,0% in 1996.

Cultivable Areas

The total agricultural land covers an area of about 200.000 hectares (Agricultural Statistics, 2001), from which 92.300 hectares represent temporary crops (46,5%) and41.300 hectares permanent crops (20,8%); the remaining 55.400 hectares represent fallow, uncultivated, grazing, forest and scrub or deserted land with 5%, 24%, 1% and 3% respectively. From 1985 to 2001, the Agricultural land decreased by 6% mainly due to urban development.

Types of Crops Cultivated

The main temporary crops are cereals with 61% of the total area under temporary crops, followed by fodder crops with 27,4% and vegetables with 10,5%. The main permanent crops are grapes with 44,1% of the total area under permanent crops, followed by olives and carobs with 24,5%, citrus with 13,1%, nuts with 9,4% and fruits with 8,7%. Irrigated land accounts 38.200 hectares or 19,2% of the total area enumerated; of this, 51% was irrigated from water pumped from boreholes, 39,2% from dams, 6,3% from rivers and 3,5% from springs.

IRRIGATED AGRICULTURE

Irrigated Crops (Permanent, Annual)

The percentage of water demand for permanent and annual crop is 59% and 41%, respectively. This accounts 95,8 MCM/year and 65,5 MCM/year. The Irrigation Water Demand of 174.4 million m^3 is distributed by crop as presented in Table 1, where is given the irrigated area by crop, the water use by crop and the value of production for irrigated crops (producer's price).

From 35.200 hectares of irrigated crops, 19.200 ha refer to temporary crops, while 16.000 ha refer to permanent crops. The main irrigated temporary crops are vegetables and melons with 27,6%, followed by fodder crops with 12,8% and cereals with 11,4%. The main irrigated permanent crops are citrus with 15,3% followed by fresh fruits with 10,2%, olives and carobs with 9,4% and vines with 7,1%.

Table 1. Distribution of irrigated areas by crop

	Total Irrigated area ha	Area %	Water use by Crop %	Value of production (producer's price) %
Potatoes	10560	30	19	31
Citrus	8448	24	31	11
Deciduous	4224	12	16	14
Olives	1056	3	2	5
Table Grapes	2112	6	3	3
Bananas, Avocado etc.	352	1	3	3
Annual Crops	2464	7	5	2
Greenhouses	352	1	1	10
Vegetables	4576	13	11	16
Clover etc.	1056	3	9	5

The area under protected cultivation (with approximately 90% cultivated with flowers), represents only the 1% of the total area, uses the minimum quantity of water and gives the highest return/income compared to the rest of the irrigated cultivations. The greenhouse cultivations represent the most profitable crops per volume of water (m^3). This is very important consideration in countries like Cyprus or Mediterranean region since the water is the limiting factor in agricultural production (Chimonidou, 2000).

WOMEN IN AGRICULTURE

Women have traditionally played an important role in agriculture in Cyprus where farms, for the most part, are family run. Labour provided by family members accounts for 80% of the total compared with 93% in EU-15 in 1997. Women are involved principally in the growing of field crops and livestock rearing. Women working in agriculture made up 3% of the working population of the country. The female workforce, whether made up of family members or employees, represented over a third of the total population working on farms (Figure 1).

The family farm is the typical production unit in Cypriot agriculture, with the farm family being the main agricultural labour source. Out of a total number of 27,552 (Agricultural Statistics, 2001) engaged in agriculture (8.9 percent of the total economically active population), 77.5% were farmers or members of the farm family (Census of Population, 2001). Rural women account for 16.5% of the total population and constitute substantial and integral part of the country's labour force. They account for 15% of the total female or 6% of national labour force (Aristotelous, 1994).

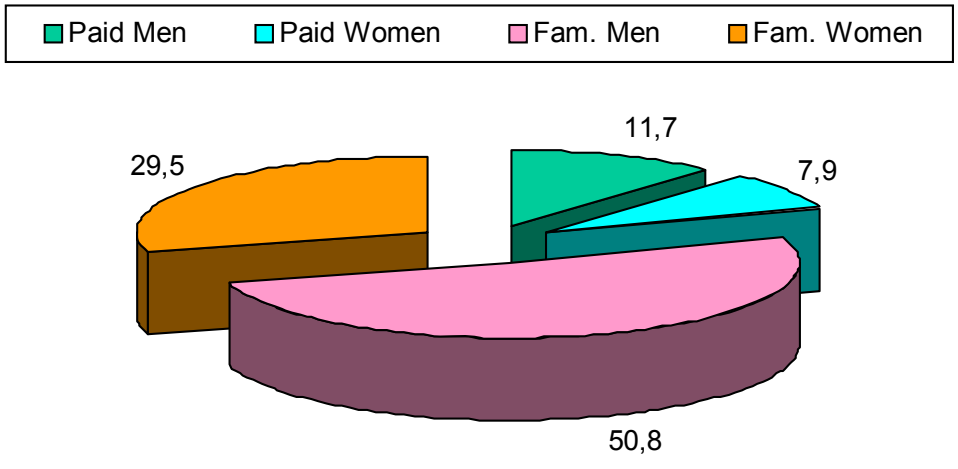

Fig. 1. Distribution of paid and family labour in Cyprus (number of persons)

Table 2. Employment in agriculture by category, sex and sub-sector, 1996-2001

Sub-Sector	1996	1997	1998	1999	2000	2001
Crop and livestock production	27.086	24.590	24.440	23.928	23.533	22.977
Holders and family members	21.075	19.932	19.670	19.218	18.967	18.512
Males	12.844	12.596	12.437	12.150	11.996	11.707
Females	8.231	7.336	7.233	7.068	6.971	6.805
Employees	6.011	4.658	4.770	4.710	4.566	4.465
Males	3.286	2.750	2.845	2.813	2.707	2.650
Females	2.725	1.908	1.925	1.897	1.859	1.815
Forestry	447	440	446	426	433	423
Holders and family members	105	85	86	82	84	83
Males	65	55	57	54	54	53
Females	40	30	29	28	30	30
Employees	342	355	360	344	349	340
Males	288	299	302	284	288	280
Females	54	56	58	60	61	60
Total	27.533	25.030	24.886	24.354	23.966	23.400
Holders and family members	21.180	20.017	19.756	19.300	19.051	18.595
Males	12.909	12.651	12.494	12.204	12.050	11.760
Females	8.271	7.366	7.262	7.096	7.001	6.835
Employees	6.353	5.013	5.130	5.054	4.915	4.805
Males	3.574	3.049	3.147	3.097	2.995	2.930
Females	2.779	1.964	1.983	1.957	1.920	1.875

The Role of Women in the Family Farm of the Mountain Region

The Mountain zone extends over the higher slopes of the Troodos massif. It comprises 66 communities with a total population of 18529 or 3.2% of the country's population (Census of Agriculture, 1994). This population, however, is constantly declining. About 5,500 small size agricultural holdings operate in the zone with a total cultivated land of around 12,000 ha.

Despite women's important contribution to family farming and rural life, their work is generally undervalued. Usually, in using the concept of labour for statistical purposes, the significant portion of women's work necessary for housekeeping, household maintenance and children's care is ignored. Even female labours used for a wide variety of tasks in the sphere of production is neglected, not recognized or merely considered "complementary" to male family members work.

The major objective of a recent study was to present an empirical analysis of the position of women in the rural society and their contribution to agricultural activities in the mountain region of Cyprus (Antoniades and Papayiannis, 2001).

Involvement of Women and Type of Farm Activity

In general, women do not participate in decision-making related to farm production activities. Only a few women (8.3%) decide themselves on farm improvements such as the buying of machinery. Even fewer were those deciding on crop cultivation and on-farm investments. However, 40.0 percent of them stated that have equal responsibilities in the management of the farm budget. A possible explanation is that budget decisions are treated as a major issue that concerns the entire family.

The involvement of women in the farm operations was closely related to the farm size. Women operating on bigger size farms had much greater participation in carrying out the various farm operations than those operating on smaller size farms.

Women are involved in farm operations, mainly harvesting, rather than in farm administration or management, with no significant regional differences in this respect. Further analysis of the data showed that the willingness of rural women to undertake field-work was associated with age, with younger women rejecting or ready to abandon it. About 58% of the respondents under 44 years old

are not involved in field-work as against 13.6% of those over 63 years. Younger women in all regions were more willing to get involved in farm administrative/management tasks.

The vast majority of the respondents (89.3 percent) were running some kind of non-agricultural enterprise, with only minor differences among regions. As regards the type of women's non-agricultural enterprise, 62.6% have developed cottage agro-industries, 29.0% handicraft and 8.4% agro-tourism activities. Almost 84% stated that they were entirely responsible for the management of these enterprises. For the remaining 16%, the responsibility lies with their husbands or children. These kinds of activities involve the professionalization of occupations in the informal economy with which women have always been engaged and through which have played an important part in establishing heterogeneity in European agriculture and the conservation of the cultural heritage, which modernization has today eroded to an incredible degree. Women have considerable ability in converting these local resources into marketable commodities, as well as facility in building interpersonal relationships and professionalizing the role of the housewife.

They have an anthropocentric approach to country life and are more sensitive than men to issues of diet and environment (Fonter *et al*., 1994). On the other hand, the professionalization of these occupations contributes to change in the structure of relations and transforms the women of the household from an unpaid accessory into co-manager of the family business (Bock, 1994).

The existence and running of non-agricultural enterprises was affected by the farm size. Rural women on smaller size farms run non-agricultural enterprises at a higher percentage compared to those on larger farms. Naturally, women farming of small area have lower farm income and by developing parallel to farming activities aim to earn supplementary income. The motives of rural women for the development and management of small businesses were related to family financing but also, to a lesser extent, to personal or professional fulfilment (Antoniades and Papayiannis, 2001).

RECOMMENDATIONS

Based on the study of Antoniades and Papayiannis (2001), some policy considerations that may improve women's position in the family farm and promote their integration into the rural society of the mountain region include:

1. Improvement of the professional and social status of women by providing them with individual entitlements to income through taxation incentives and to social security schemes.
2. Establishment of associations networks for farm-women to improve their representation in rural development and in decision-making. Networks are required for better communication, share of information, advice and guide inter- and intra regionally.
3. Representation at the decision-making levels so as to break their social exclusion.
4. Acceptance of women's participation in the planning processes for local development programmes and initiative actions.
5. Restructuring of the vocational training in the rural areas to incorporate courses, advices and information on market oriented skills, relevant to women response to labour demand on farm work and off-farm activities.
6. Shift of agricultural training from the traditional form of home economics to farming techniques, production of new products (cut flowers, pot plants, dry flowers, organic farming), farm management, farm administration, investments, planning and other important actions for the rural life.

CONTRIBUTION OF ARI ON GEWAMED PROJECT

For the first 18 months of the project, ARI may contribute to the WP1 (Building a national Knowledge Base for Coordination, Communication and Dissemination), the WP2 (Building a Regional Knowledge Base for Coordination, Communication and Dissemination – via Internet) and the WP3 (Mainstreaming Gender Dimensions in Water Management for food security and food safety).

The knowledge and experiences gained from the two Conferences on "**The New Challenge of Women's Role in Rural Europe**" (2001) and "**Women and Sustainable Rural Development in Europe**" (2004) that took place at the ARI, will be useful in building a National Knowledge base and

help the countries of the South East Mediterranean Region to establish a knowledge base through similar processes. At the same time, the establishment of the National web site will initiate and ARI will contribute to the establishment of the regional web site. It is possible that at the end of the first year a Regional Workshop on "Mainstreaming Gender Dimensions in Water Management for Food Security and Food Safety" will be organized in Cyprus.

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