

## THE AGRICULTURAL EXTENSION SERVICE OF THE REPUBLIC OF CROATIA

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### *Introduction*

Although extension work in agriculture began during the first half of the 19th century, due to an unfavorable attitude toward the private sector during the socialist regime, this key support function to family farms has not developed adequately. In the late 1980's and early 1990's, the lack of adequate extension work was perceived as an obstacle to agricultural and rural development. After Croatia declared independence, the new political and economic orientation resulted in the adoption of the Program of the Agricultural Extension Service for the Villages of the Republic of Croatia for the period from 1991 to 1995 and the establishment of the Public Agricultural Extension Service. Since the funds approved for this purpose were merely symbolic in relation to the amount required for establishing such a complex institution, existing institutions or parts thereof were organized into an agricultural extension system. By the end of 1993, a total of fourteen regional extension services had extension system. By the end of 1993, a total of fourteen regional extension services had been formed as well as seventy-five municipal extension services.

The operations of the service on the national and regional levels are wholly financed from the state budget while 50% of the funding for municipal extension services comes from local sources. In terms of status, the agricultural extension service is not an independent institution. The regional and municipal services are in a contractual relation with the Agricultural Center of Croatia, which coordinates the Agricultural Extension Service on the basis of a contract with the Ministry of Agriculture and Forestry.

Despite considerable efforts invested, the quality of the work of the Service is adversely affected by the dual status of its employees, modest and irregular financing, as well as poor equipment.<sup>1</sup> In addition, employees who spend 50% of their working hours in the other 50% of their working hours in extension work. As a result of poor funding and inadequate support from the other components of the system of family

<sup>1</sup> Magdalenić, I. Župančić, M.: Seljačke ocjene o javnim službama u poljoprivredi Hrvatske (Farmers' Assessment of the Public Agricultural Services in Croatia), Sociologija sela, Vol. 31, No. 1/2, Zagreb

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farm support institutions, the Service has been engaged in activities in which it should not be involved (loans, commerce). The connection of the Service with scientific and research institutions has not been systematically defined. Therefore, the Service attempts to solve specialized problems by itself, although it lacks adequate personnel and material resources. On the other hand, the existing personnel potentials in the scientific institutions are under utilized.

Changes in the administrative system of the Republic of Croatia created a need for the reorganization of the Agricultural Extension Service and its coordination with the new administrative system. The former model for service organizations at the municipal level is no longer applicable because the number of municipalities has increased from 102 to 421. Under present conditions, increasing the number of municipal extension services would not be feasible from the financial standpoint. Such a horizontal cost increase, even at the existing standard of financing, would be excessive for the national government as well as for the governments of the individual new municipalities that would be required to finance 50% of the activities of the municipal services. Moreover, it is a question whether it would be possible to find a sufficient number of qualified employees for performing extension activities in the present form with the existing program. Such a situation requires the redefinition of the role, status and programs of the regional services.

The current process of the privatization of some of the institutions operating within the framework of the service means that there is the danger of losing some personnel experienced in extension activities.

In addition to the Public Agricultural Extension Service, whose services to family farms are provided gratis, there are a number of institutions which provide services for a fee, primarily in livestock breeding. In comparison to the Public Agricultural Extension Service, such institutions are in a somewhat better condition. The basic reason for this is the systematic financing of their activities and the prevailing legal regulations. This can be explained by the fact that a lack of support in the livestock sector can have far more serious consequences in comparison with other sectors as well as the significance of the livestock industry in the agricultural exports of the Republic. Since family farms own over 90% of the basic herds and dominate livestock production, it is natural for them to benefit from this situation.

The new economic climate has created conditions for the appearance of specialized commercial private institutions. In addition to the widely distributed veterinary stations, which have been privatized, there have also appeared a small number of private advisory and consulting institutions. Moreover, commercial advisory activities operate within the framework of commercial associations, cooperative systems and research institutions. As the process of privatization advances, it can be expected that some of these institutions together with new ones, will become specialized for commercial advisory work and other support for agricultural enterprises and commercial family farms. Such producers will require integrated and top quality on-line support which will not be available via the public extension system.

*The significance of livestock production in family farms*

Private family farms have a very significant role in the livestock production of Croatia. Their share of the total number of livestock is as follows: 75% of the cattle, 65% of the hogs, 96% of the sheep, 100% of the horses and approximately 50% of the poultry. Regarding breeding livestock, the share belonging to family farms is even more significant: 97% of the cows, 78% the sows, 90% of the ewes and nearly 100% of the mares (Tables 1-3).

Poultry breeding is the most prevalent branch of livestock production on the family farms in Croatia (76%), while hog breeding is practiced by 46% of the family farms, cattle breeding by 38%, sheep breeding by 7.4% and horse breeding by 4.8%. Analysis of livestock production from the aspect of the average size of the family farms shows that the "average" family is characterized by marked diversity in production while "average large" and especially "large" farms are significantly more specialized. Through analysis of the structural representation of individual types of livestock in family farms, it was shown that the "large" farms have from two to four times a greater share in the breeding of hogs, cattle, sheep and horses in relation to the average.

Although this survey indisputably indicates that livestock breeding in Croatia during the period of the socialist planned economy was firmly based upon family farms, the longterm and continuous marginalization of family farms and villages as well as the favoring of large industrial farms of the so-called "public sector" caused a gradual lag in livestock production.

Slowed development and a relative lag in livestock production was most evident in the use of modern technological processes in all branches of livestock breeding except poultry production. Particularly unsatisfactory was the production of breeding stock, the fertility level, annual meat production per head, and the quality of livestock products for the food industry and market (except cattle).

All the above reduced peasant interest in livestock breeding in general, particularly for the market of livestock products. In the past decade, this resulted in a serious drop in the total number of livestock, especially in the number of breeding head. During the period from 1981 to 1991, the total number of cattle dropped by 31%, with the number of cows and pregnant cows by 25%. In the same period, the number of hogs dropped by 17%, with the number of sows and pregnant sows dropping by 8%. The trend of a reduced interest in hog breeding was common to all except especially large family farms.

Table 1 - STRUCTURALLY MOST REPRESENTED TYPES OF LIVESTOCK ON FAMILY FARMS IN 1991

TYPE OF LIVESTOCK (structure %)	AVERAGE SIZE OF FAMILY FARM				
	TOTAL up to 1 ha. small	1.01-5.00 average	5.01-10.00 average large	over 10.01 large	
CATTLE	100	9.6	59.9	25.9	4.6
HOGS	100	18.0	57.9	20.7	3.4
SHEEP	100	23.8	49.5	20.8	5.8

In 1981, every other family farm produced milk. In 1991, only every third family produced milk. In all groups of farms, the average number of cattle per farm and per hectare of cultivated land has dropped, except on "large" farms where the average number has insignificantly increased. During this period, there was no increase in the number of farms with 5 or more cows.

Table 2 - STRUCTURALLY MOST REPRESENTED TYPES OF BREEDING LIVESTOCK ON FAMILY FARMS IN 1991

TYPE OF LIVESTOCK Structure and index for 1981/1991	AVERAGE SIZE OF FAMILY FARM				
	TOTAL	up to 1 ha.	1.01-5.00	5.01-10.00	over 10.01
Cows- structure (%)	100	5.9	49.9	35.6	8.6
Cows - index	75	74	71	78	94
Sows - structure (%)	100	9.8	55.3	29.3	5.6
Sows - index	92	104	99	77	105
Breeding sheep structure (%)	100	23.4	49.1	18.6	8.9
Breeding sheep index	86	85	89	82	78

Table 3 - AVERAGE NUMBER OF BREEDING LIVESTOCK ON FAMILY FARMS IN 1991

FARM AREA	PER FARM			PER HA. IN USE		
	COWS	SOWS	SHEEP	COWS	SOWS	SHEEP
up to 1 ha.	0.13	0.11	0.49	0.26	0.23	0.99
1.01-5.00 ha.	0.76	0.44	0.71	0.30	0.18	0.28
5.01-10.00 ha.	2.05	0.90	1.03	0.30	0.13	0.15
over 10 ha.	2.60	0.89	2.56	0.17	0.06	0.17
AVERAGE	0.75	0.40	0.72	0.27	0.15	0.27

Despite the trend of a reduction in livestock breeding, it is significant to note how the family farms in Croatia have a respectable production potential and represent a significant factor in total agricultural production, especially livestock breeding. It is necessary to develop an extension service quickly in order to contribute to the growth and efficiency of the utilization of this potential.

*Possibilities for the organization and function of extension activities in livestock breeding*

The Agricultural Extension Service as a whole, as well as the component livestock advisory activities, should be organized as a dynamic institution, i.e. one which would connect various subjects and territories in agriculture. Dynamic changes brought about by research broaden the dimensions of technological, economic and social conditions, and require rapid transmission and practical application. In order for the Agricultural Extension Service to be vital and able to meet these challenges, it must be flexible

regarding organization, goals and the use of resources.

The main task of agricultural extension activity is education. The Agricultural Extension Service must transmit information resulting from research to the public with the goal of helping people identify and solve problems. The service users, i.e. individuals, families and rural communities, should be motivated to apply new technology and management techniques. Spreading and applying knowledge increases and improves agricultural production in village households and raises the quality of rural life. Extension programs should be designed to meet local and national needs. Within the present agrarian structure and current orientation in support of private family farms, the service can play a significant role in the rapid implementation of government policies for improving rural areas and family farms.

Agricultural extension activity should make use of research work at colleges and institutions so that the results of these investigations can be made available to those who need them. In order to achieve this, the agricultural extension system needs to assure two-way communication. In addition to formal, organizational and territorial structure, the service must have functional links with the educational and research system. Education of extension staff is the key for the successful function of the Agricultural Extension Service. Therefore, educational programs directed at training professionals in livestock breeding should include material necessary for extension work with family farms. Presently, the curriculum for college students studying livestock breeding at the College of Agronomy in Zagreb and the College of Agriculture in Osijek requires eight semesters. After completing final examination, students graduate as agricultural engineers who are specialized in livestock breeding.

At the College of Veterinary Medicine in Zagreb, in addition to veterinary studies the students complete four semesters of livestock breeding studies. Thus, a graduate veterinarian, in addition to classical training, is qualified to participate actively in the advancement of livestock breeding.

The Agricultural Institute in Križevci produces graduate engineers with a major in livestock breeding as well as agricultural technicians. Secondary school training for technical and specialized workers is available at other institutions.

These colleges are conducting all the research projects in livestock breeding, with the financial support of the Ministry of Science and Technology. At these colleges, new methods are being developed for research and practical application in the fields of biotechnology, animal husbandry, establishment of a gene bank of rare species and breeds etc. Approximately 180 scientific workers, some with doctorates or master's degrees, participate in these scientific research projects.

In addition, it is necessary to promote the training of personnel on all levels through intensive continuing educational programs as well as postgraduate studies, which should stimulate the recruitment of young technical personnel.

*Reorganization of the Agricultural Extension Service and public extension activity in livestock breeding*

The new organizational and functional structure of the Agricultural Extension Service of the Republic of Croatia is based upon the principles of territorial, functional

and program uniformity. Therefore, public extension activity in livestock breeding should be organized as a functional part of the entire public extension activity.

From the administrative and organizational standpoint, the Agricultural Extension Service would consist of the National Extension Service and the District (Županija) Extension Units. The headquarters of the National Extension Service would be in Zagreb while the District Extension Units would be units of the Agricultural Extension Service. This would achieve uniformity in the common programs, management, financing and personnel selection criteria. Formally and legally, the Agricultural Extension Service would be a service within the Ministry of Agriculture and Forestry of the Republic of Croatia.

THE NATIONAL EXTENSION SERVICE will handle the administrative and professional work of the Agricultural Extension Service. The Agricultural Extension Service will nominate a director for this service, to be appointed by the minister of agriculture and forestry. The National Extension Service will include a professional-organizational group, information system group and publishing group.

Professional-organizational group:

- coordinates and supervises the uniform activities of the extension program adopted by the Agriculture Extension Council,
- serves as a link between the District Extension Units and the research institutions in solving complex problems regarding the application of research for the Agricultural Extension Service as adopted by the Agricultural Extension Council,
- supervises and assesses the activities of extension staff,
- organizes the ongoing training of extension staff.

Information Systems Group:

The Information System Group maintains the extension advisory information system and its connections with other relevant information systems. From the standpoint of the function of the Agricultural Extension Service, the basic task should be to establish, expand and maintain an information bank of agricultural advisory information. This information bank would consist of questions and suitable answers by experts hooked into the extension system regarding questions encountered by extension staff in the field. Since access would be available to all parts of the Agricultural Extension Service, it would always be possible to obtain a competent answer to every question.

Publishing Group:

- The Publishing Group would be engaged in the systematic dissemination of information via all the media in accordance with the uniform extension program. This group would implement the decision of the Agricultural Extension Council regarding the publishing program and the organization of promotional and publishing activities in cooperation with scientific and research institutions. This would provide the highest possible standard of quality for extension publications.

DISTRICT (ŽUPANIJA) EXTENSION UNITS would be the basic units in the Agricultural Extension Service program. Depending on the natural and economic characteristics of a district (županija), an extension team would consist of 3-7 specialists in particular fields of agricultural production and for solving economic, legal and other relevant problems to improve the life of village families and rural communities.

The main tasks of the District Extension Units would be as follows:

- execute the extension program in the županija district,
- coordinate the application of research work ordered by the Agricultural Extension Council in the županija district,
- organize major extension events (fairs, regional agricultural competitions for farmers and youth, study trips to foreign countries etc.)
- cooperate with other organizations and services engaged in the advancement of agriculture in the županija district.

The framework of the proposed concept is based upon the principle that the Government of the Republic of Croatia (Ministry of Agriculture and Forestry) finances the Agricultural Extension Service to the level of the županija district. Depending on the needs, potentials and goals for economic development, in some županija districts there are or will be initiatives for a larger number of extension personnel, denser field coverage and direct work with farmers. In such cases, it would be necessary to assure that the Agricultural Extension Service of the District carries out the uniform components of the program in collaboration with the District Extension Unit. The cohesive factor of such a relation would be the opportunity for the Agricultural Extension Service of the District to use the specialists and material potentials of the Agricultural Extension Service of the District to use the specialists and material potentials of the Agricultural Extension Service, with direct insight into the effects of the realization of the uniform Agricultural Extension Service program via feedback from the Agricultural Extension Service of the District.

This aspect of the organizational and functional structure provides the opportunity to expand extension activity as a whole, including livestock breeding.

#### *Other extension activity in livestock breeding*

The advancement of the selection and breeding of livestock in Croatia is carried out via governmental institutions and nongovernment organizations. There is presently no effective organization which would functionally connect all those involved in various ways in elevating the level of livestock production, taking into account the interests of the cattle raisers in coordination with the national cattle policy.

*The chief support for the development of livestock breeding is provided by the following:*

1. Livestock service complex, including the following:

- *The Sector for Agriculture (Livestock Breeding)* in the Ministry of Agriculture and Forestry of the Republic of Croatia is primarily engaged in the control, directed

breeding and use of all forms for stimulating livestock production. A law and regulations are being prepared which the Ministry proposes to the Government to perform inspection duties according to the stipulations of the Measures for Advancing Livestock Breeding and other regulations. The Ministry of Agriculture and Forestry is an authorized institution, like the Agricultural Center of Croatia and the Center for Reproduction in Livestock Breeding of Croatia, which makes decisions concerning organization, development and financial support.

- *The Center for Reproduction in Livestock Breeding of Croatia, Ltd.*, is a specialized organization for activity in the field of reproduction, sperm production, animal reproduction, fertility-sterility, genetic engineering in livestock breeding, laboratory diagnostics and informatics. The center is a very good organizational model for all activities in the field of reproduction.

- *Agriculture Center of Croatia - Livestock Selection Center of Croatia* is a legally established institution for coordinating livestock breeding-selection activity in Croatia. The center organizes and coordinates the control of productivity and animal testing in Croatia, as well as a breeding program. These activities are based upon a long tradition because the first organized beginnings date from 1913. The government covers approximately 27% of the total expenditures while the remainder is covered by the center's activities (the chief source is the sale of breeding livestock).

- *Županija District Selection Services* control the productivity and registration of animals for the herd book. They represent a part of the uniform selection service of Croatia and are in charge of the entire breeding service to breeders. The services are partially financed by the Government (15-20%), partially by the users of services, while the remaining expenditures are covered by the services' revenues from the sale of breeding livestock. A weak material base and the small number of herds hinder the operations of the services, particularly regarding the control of productivity.

In the process of the harmonization and functional coordination of the activities of all subjects, the Livestock Breeding Selection Center would be responsible for carrying out the proposed investment in the breeding of animals, while the Center for Reproduction would be responsible for investment in the development of reproduction. Control of productivity is coordinated by the Livestock Selection center, and carried out by the Selection Service of Croatia. The advancement of hog breeding would be directed at formerly publicly-owned farms with selected herds which would be sold for breeding and semen collection at the Center for Reproduction in Livestock Breeding of Croatia and other centers for artificial insemination.

The Livestock Selection Center at the beginning would be responsible for the identification and management of the requirements for genetic imports, but it is anticipated that the private sector would participate when a national policy is developed for improving breeding. Throughout the project, the Livestock Selection Center will support the establishment of independent associations for improving breeding which would be controlled by the breeders, and would be responsible for defining the conditions for the registration of breeding (in coordination with national breeding policy).

- *The Croatian Agronomic Association* is a professional organization promoting the highly diverse activities of approximately 5500 agronomists in Croatia. Via the Section for Livestock Breeding and the professional scientific journals *Stočarstvo (Livestock*



*Breeding*) and *Krmiva (Fodders)*, it systematically promotes the scientific and professional knowledge of professional and technical workers, as well as livestock producers.

2. The veterinary services complex includes the following:

- *The Veterinary Service* in the Republic of Croatia is organized in a pyramid structure upon the following principles: a) vertical subordination, b) consistent division of labor and c) adaptation to the administrative divisions of the Republic.

On the top of the pyramid is the independent Administration for Veterinary Medicine in the Ministry of Agriculture and Forestry. In the center are national veterinary institutions for laboratory diagnostics and analyses.

At the base of the pyramid are the veterinary stations. In each of the former municipalities there is a veterinary station. Each of them, depending on the size of the municipality, has organized a suitable number of veterinary clinics. The veterinary stations are under private ownership. The number of veterinarians opening specialized clinics is increasing, especially in the cities.

In the Republic of Croatia, veterinary inspection is within the auspices of the Ministry of Agriculture and Forestry. It operates as an independent administrative body - the Administration of Veterinary Medicine.

The fundamental veterinary law in the Republic of Croatia is the Animal Health Care and Veterinary Activity Act (Narodne novine (Official Gazette), No. 52/91). This act regulates the health care of animals, the prevention and control of diseases common to animals and humans; control of animals for slaughter, fish, mollusks and shell fish and other products of animal origin; the wholesomeness of animal feed, reproduction and animal welfare, veterinary environmental protection, organization, financing and other questions of significance for carrying out the uniform system of health care and veterinary activity in the Republic of Croatia.

On the basis of this act, a large number of new regulations have been passed (rule books, ordinances, directives), chiefly concerning the control and eradication of individual contagious diseases, the control of production and the sale of animals and products of animal origin.

The sale of medications for use in veterinary medicine is regulated by the Medication Marketing Act. Specific authorization to the veterinary service is issued by individual acts in the field of health and livestock breeding.

The well organized veterinary service and veterinary regulations assure an effective system for determining and controlling contagious diseases.

- The Croatian Veterinary Association is a voluntary, nonpartisan, nongovernmental organization of veterinarians who are active in Croatia. It was founded in 1992 as the heir to the Croatian-Slavonian Veterinary Association founded in 1893. The activities of the association include the entire field of veterinary medicine and the health care of animals and humans, environmental protection, improving the economic value and quality of food of animal origin. The association promotes veterinary, scientific and professional activities. It is concerned with the professional training of its members, their professional status and social interests. The Association publishes the *Hrvatski veterinarski vjesnik (Croatian Veterinary Gazette)*.

- Within the complex of veterinary services, it is necessary to mention the Chamber of Veterinary Medicine as well as scientific and educational institution engaged in veterinary medicine.

### *Conclusion*

The proposed transformation of the Public Agricultural Extension Service and other agencies engaged in advisory functions in livestock breeding would contribute to improved efficiency, more rapid development of the genetic potential of the existing livestock population, and consolidation in the field of livestock production. Farmers would have a greater choice of genetic material and the opportunity for better adapting to alternative production systems - at a cost commensurate with the quality offered. When the suitable data base is developed, the farmers who participate in production control will be able to choose parents based on calculated breeding values for each animal. Within the framework of the Selection Service, this would signify support for the development of production associations in Croatia such as the already existing Simmental Cattle Breeders Association. The proposed modern organizational system for extension activity in livestock breeding would include payment for part of the expenses by the users of the services, which could eventually encompass reports to producers on the productivity of their herds or the breeding value of each individual animal.

It will not be possible to realize the goals expressed without the support of a well developed auxiliary information system. The information activity of the Agricultural Extension Service should be organized in accordance with contemporary organizational principles and technological characteristics. This means that the information and publishing structure within the framework of the Agricultural Extension Service should be capable of assuring the exchange of information with the other components of the system of agricultural knowledge and the system of agricultural support institutions. Since the Agricultural Extension Service will cover the entire territory of the Republic of Croatia to a certain extent, it is a suitable potential candidate for being in charge of the entire agricultural information system for the Republic of Croatia. This would facilitate the regular exchange of information on an international level, which would accelerate a gradual reduction in the developmental differences among the various branches.

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