Balkan Agro Food Network

Support the opening of the European Research Area by developing a sustainable network in agricultural and food sector in the Western Balkan

Agri-food research
in the Western Balkan Countries:

AGRIFOOD RESEARCH IN Former Yugoslav Republic of Macedonia
National Mapping Report

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Editor's note

This 'mapping report' is a country-specific synthesis of the statistical information and the survey results available to describe agrifood research in Former Yugoslav Republic of Macedonia (FYRoM). The main source of information was the web-assisted survey conducted in the BAFN project frame in 2006 and 2007. When relevant, available complementary statistics were also used.

It needs to be stressed that Former Yugoslav Republic of Macedonia (FYRoM) has a fairly large agrifood research capacity amongst the BAFN countries. Altogether, a total of 73 agrifood research units were identified of which 34 have answered the survey questionnaire. This gives a sound base for most of the statements in this report.

In providing a more general context to the mapping, GKI Economic Research Co. has relied upon the statements in the *Review Document* prepared by our BAFN project partners: the Macedonian government (Sector for EU integration, Ministry for Education and Science, Ministry of Agriculture, Forestry and Water Economy), Macedonian Statistical Office, Macedonian National Bank and ETAT S.A.

CONTENT

1. Agriculture and agrifood industry

At independence in September 1991 Former Yugoslav Republic of Macedonia (FYRoM) **was the least developed** of the Yugoslav republics. Sovereignty also meant the end of transfer payments from the central government and eliminated advantages from inclusion in a de facto free trade area. An absence of infrastructure, UN sanctions on the downsized Yugoslavia, and Greek economic embargo hindered economic growth until the mid-1990s.

Former Yugoslav Republic of Macedonia (FYRoM) has maintained **macroeconomic stability** with low inflation, but it has lagged the region in attracting foreign investment, and job growth has been anaemic. Former Yugoslav Republic of Macedonia (FYRoM) has an extensive grey market, estimated to be more than 20 percent of GDP (for more details see the *CIA World Factbook*).

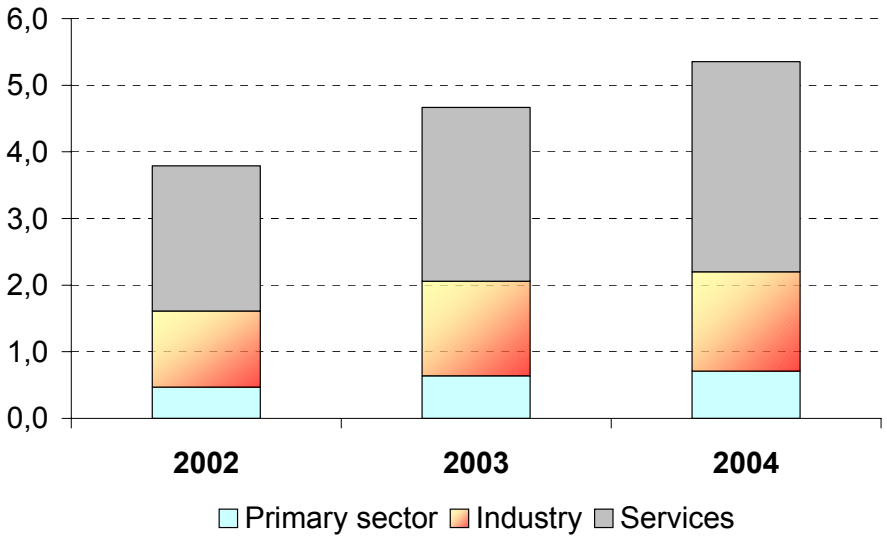
The country is fully participating in the EU's pre-accession fiscal surveillance. A broad political consensus has been maintained on the fundamentals of economic policy, although political disputes have occasionally slowed down the reform process. (*European Commission, Progress Report* [2007])

The per capita GDP in Former Yugoslav Republic of Macedonia (FYRoM) today is about 2300 euros. Unemployment is above 35% and public debt is substantial (42% of GDP). However, a considerable part of the unemployment is structural, as confirmed by the weak link between economic growth and the level of employment. Unemployment among the young is still very high and the duration of unemployment in this age group is long. Inflation returned to the low levels (1,4%) of previous years after special factors, such as the increase in excise taxes and higher energy prices. Overall, inflation remains under control. (*European Commission, Progress Report* [2007])

The service-sector accounts for 59%, industry for 28% and agriculture for 13% of the GDP. Within the manufacturing industry, the food industry gives 32% of value added. More than **180 thousand people work in agriculture (22% of the employment).**

Fig.1

GDP in the three main economic sectors (billion euro)*



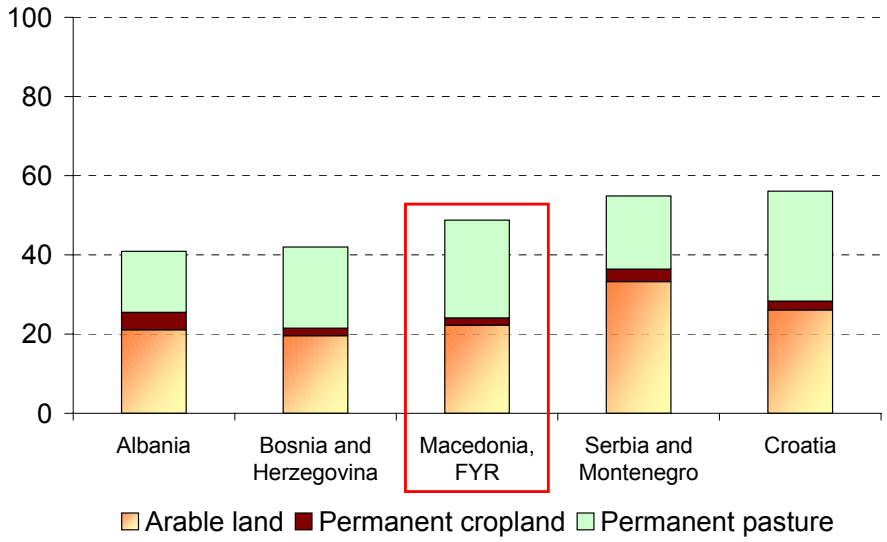
Source: WDI database

The export of agricultural products is about 350 million US$ of which food products account for 330 million euros per annum. Former Yugoslav Republic of Macedonia (FYRoM) is a **net food importer** (especially wheat is imported), but the country has the potential to be self-sufficient from agrifood products. The urban population relies heavily on imported food products, while the rural population covers the majority of its food needs from its own production. **Tobacco** is the most important agricultural product (mostly for export).

With the mountainous landscape the natural conditions greatly vary within the country and are not always favourable for agriculture. The **availability of water is a problem** for about 40% of the arable land. At the same time unexpected rainfalls cause erosion and local floods. **About 48% of the land is used as agricultural land**. Most of the agricultural land is permanent pasture (51%), and arable land (45%) the rest (4%) is permanent cropland (in 2003, see the WDI 2006 database for Former Yugoslav Republic of Macedonia (FYRoM).

Fig.2

Agricultural land as a % of land by type



Source: WDI 2006 database

Agricultural land is fragmented and there are many smallholders of agricultural households. **Investments and the technological levels in agriculture are low**, the statistical information system for agriculture is largely missing for the moment and being built with foreign assistance. Individual farmers own or rent approximately 80% of all arable land, most of the pastureland is owned by the state and managed by public enterprises (for more details see the *Review Document* [2007]).

Livestock numbers have stabilised and are growing steadily. Cattle numbers have increased slightly since 1992. About 50% of cattle are for the dairy sector. There are about 30 state farms with 250–1200 cows in the Skopje and Bitola areas. Over 90% of cattle, however, are in private hands, with most farmers rarely having more than three cows because of limited land. The goat sector is rapidly growing (the raising of goats was prohibited during the socialist era in order to protect forestry resources).

Table 1

Agrifood industry performance indicators: «Former Yugoslav Republic of Macedonia

	1990	1995	2004
Agriculture value added per workers in agriculture (constant 2000 US$)	2 257*	2 280	3 177**
Agriculture value added per sq. km of agricultural land (current US$)	25 752	38 586	48 318
Export of agricultural products (% share of world trade)	n.a.	0,05	0,04
Export of food products (% share of world trade)	n.a.	0,05	0,05
Food export per agricultural worker (current 1000 US$)	n.a.	1,2	1,8
Food import per population (current US$)	n.a.	152	202

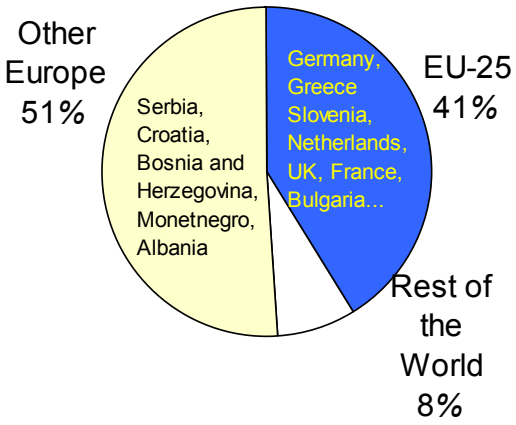
Source: WDI 2006 database, *1992, WTO statistics, **2003

The most important agrifood export products are (see the *Review Document* [2007]:

- tobacco (raw and processed);
- wine;
- fruit and vegetables;
- tomato;
- potato;
- freshwater fish;
- sheep and goat meat;
- milk and dairy products.

Fig.3

Export products by main trading partners



Source: *Review document* [2007]. Note: correct statistical reference will be needed.

The **Former Yugoslav Republics are the largest export markets**, followed by Germany, Greece, Slovenia and the Netherlands (for further details see also the *Review Document* [2007])

We would also mention that there has been progress in the area of agricultural policy development. Administrative capacities are moderately developed. Under horizontal issues, the agriculture census was conducted in 2007. A general law on agriculture and rural development has not yet been enacted. The National Strategy on Agriculture and Rural Development 2007-2013 was adopted by the Government. (*European Commission, Progress Report* [2007])

2. Agrifood research capacities

2.1. Institutional structure

In Former Yugoslav Republic of Macedonia (FYRoM) **no private business was identified** as an organisation that conducts agrifood research. Probably there are some companies, which undertake such research activities, but the fact that they are presumably few in number as compared with state-owned institutions (including higher education units) contrasts global agrifood research trends in the developed countries.

Table 2

Number of agrifood research groups identified and response rate to the BAFN survey in March 2008

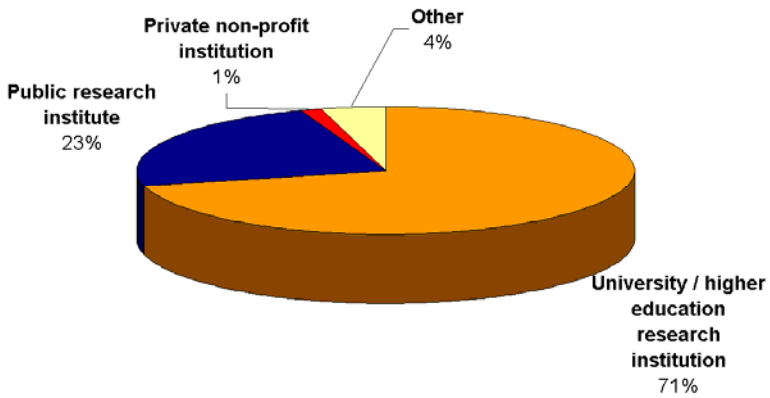
	Number of research groups	Response rate (%)
University / higher education research institutions	52	35
Public research institutes (e.g. Academy of Science, government research organisations, etc.)	17	88
Private non-profit institutions	1	0
Others	3	33
Total	73	47

Source: BAFN Survey, March 2008

In Former Yugoslav Republic of Macedonia (FYRoM) the number of agrifood research groups totals to 73, of which 71% (52) is in a university or a higher education institution, 23% (17) in a public research institute (e.g. Academy of Science, government research organisation, etc.). **Most Former Yugoslav Republic of Macedonia (FYRoM) agrifood research groups are in public research units**. The detailed list of organisations can be found in the Annex.

Fig.4

Agrifood research groups identified by type (%)



Source: BAFN Survey, March 2008

In Former Yugoslav Republic of Macedonia (FYRoM) **there are five higher education institutions** in the country in the area of agriculture: the Faculty of Agricultural Science and Food, the Faculty of Veterinary Health, the Faculty of Medicine, the Faculty of Biotechnological Sciences and the Faculty of Forestry. In addition, **there are five public research institutions**: the

Institute of Agriculture, the Institute of Livestock Breeding, the Institute of Tobacco in Prilep, the Institute of Southern Crops in Strumica and the Veterinary Institute, the Institute of Hydrobiological Sciences.

The Institute of Agriculture carries out its research in the field of plant production on about 360 hectares of arable land. The largest portion of its work is seeds and seedlings production and sale. The Institute of Tobacco is one of the best equipped and the most powerful research institutions (for more details see the *Review Document* [2007]).

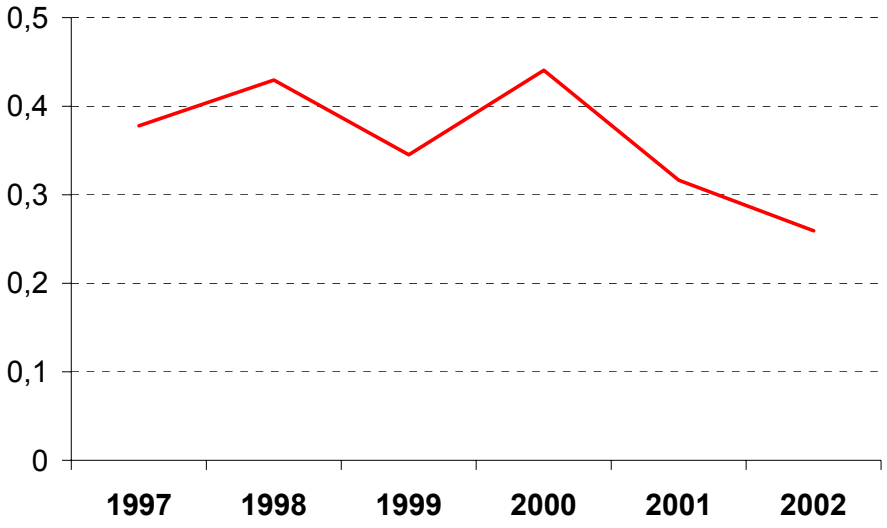
The BAFN Survey questionnaire was responded by 35% of the universities and higher education research units, and 88% of the public research organisations. One of the not classified institutions have also answered the questionnaire.

2.2. Financing agrifood R&D

Due to the country's difficult economic situation, the expenditure on research and development as a per cent of GDP has fallen by 30% since 1997. The *Review Document* [2007] notes that the budget allocated to agricultural research in 2005 amounted to about 0.4 percent of the GDP of agriculture, which means that **agrifood research is in a relatively better position** than other S&T areas. Nevertheless, the expenditure on agricultural research and education has reduced over the period from 2003 to 2005.

Fig.5

Gross Domestic Expenditure on R&D as a % of GDP (Macedonia)



Source: UNESCO

The *Review Document* [2007] identified the following key S&T policy trends:

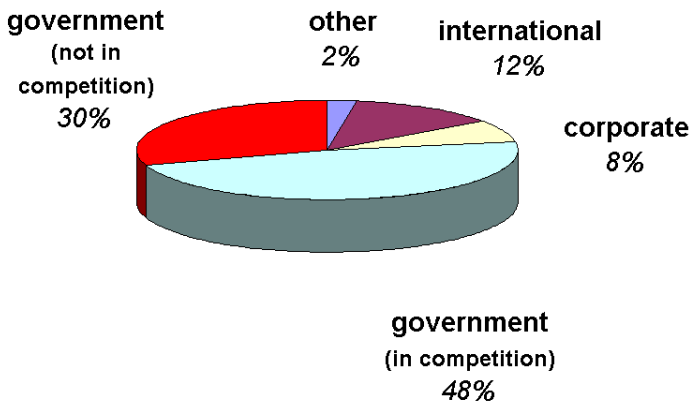
- there is still a sharp need for a unified research and education policy, which does not exist in Former Yugoslav Republic of Macedonia (FYRoM);
- government research spending has shifted towards clients' needs; and
- establishing better market economy conditions also for R&D should be targeted more.

Government agrifood research is funded mostly by the Ministry of Education and Science and to a smaller extent by the Ministry of Agriculture, Forestry and Water Economy. Between the ministries there is some coordination of the agrifood research spending.

The trends above show that **R&D spending is in a transition phase**. By March 2008 38 Former Yugoslav Republic of Macedonia (FYRoM) agrifood research organisations took part in the BAFN survey. Their response to the question on research budget financing shows that **government spending is the most important source of financing agrifood R&D in Former Yugoslav Republic of Macedonia (FYRoM)**. Most of the publicly funded institutions have to compete for funding. Only 8% of the agrifood research organisations reported that industry (corporate) financing is decisive in their annual research budgets, however, foreign resources are marked.

Fig.6

Distribution of agrifood research organisations by main financing source of the annual research budget



Remarks:
1. Government financing: projects won after competitive bidding procedures – so that the organisation can actually lose the funding targeted at the end of the procedure – count as source on a competitive basis. If the organisation participates in a money-allocation mechanism so that the money cannot be lost (but e.g. 'only' reduced), it counts as source on a non-competitive basis of research funding even if the procedure itself is called 'competitive bidding'.
2. Other sources: foundations, non-profit organisations, etc.
Source: BAFN Survey, March 2008

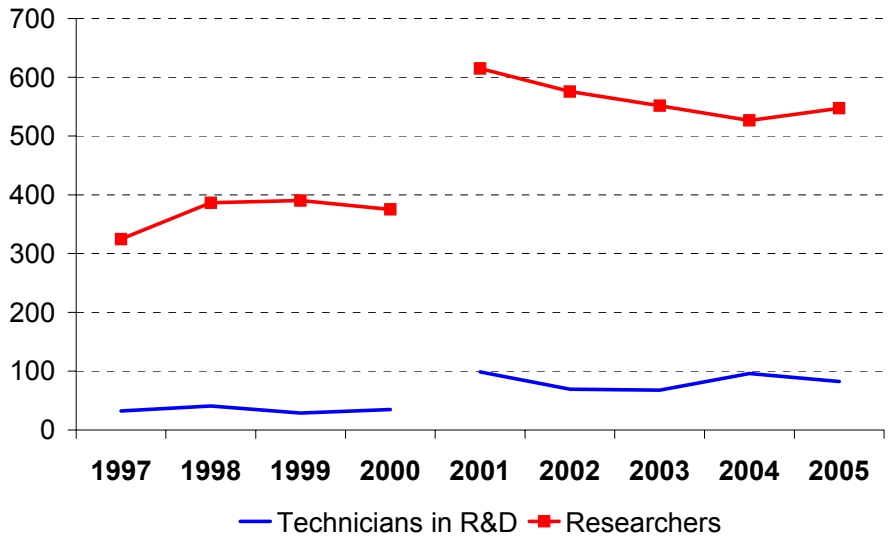
The *Review Document* [2007] provides some explanation for the interesting funding structure. For **public higher education units**, the government provides funding only for the salaries (20%), the rest comes from project funding often organised on a competitive bidding procedure. Since such funding is hectic, the research staff has started to offer fee-based services such as seeds sale, agriculture information services and advice to farmers on fertilizer regimes. For **public research institutions**, most of the funding is part of the annual government budget, but they can also compete for additional international and government funding.

2.3. Human resources

Although it was not specifically mentioned in the *Review Document* [2007], we assume that '**brain-drain**' of researchers to abroad and the so-called '**brain-waste**' of specialists leaving their professions for better paid jobs in the private and/or informal sector of the economy has been featured in the Former Yugoslav Republic of Macedonia (FYRoM) economy as well.

Fig.7

Researchers and technicians (FTE) per million people



Note: in 2001 there is a break in the series
Source: UNESCO

According to the latest 2005 UNESCO statistics, the total number of Former Yugoslav Republic of Macedonia (FYRoM) researchers is around 2500 (headcount) and about 1100 on a Full Time Equivalent (FTE) basis.

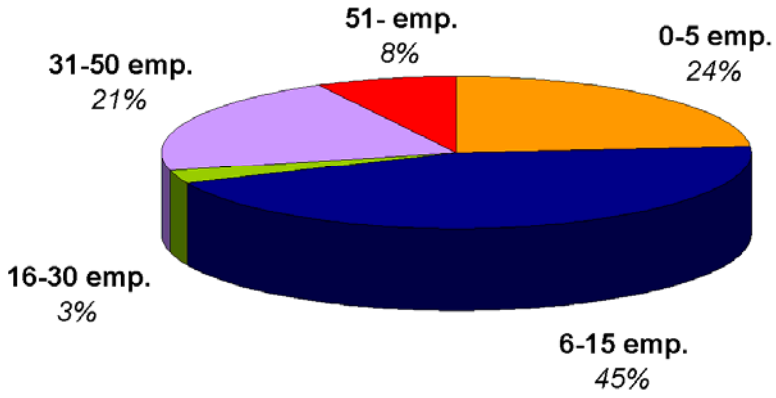
By March 2008, 38 agrifood research organisations (33% of the total) have answered the BAFN questionnaire, reporting 358 researchers on a Full Time Equivalent (FTE) basis. This is already more than the 313 in the *Review Document* [2007].[1] Our estimate for the number of agrifood researchers is 500-550, but with uncertainty. This means that **in comparison with the UNESCO statistics**, half of the Former Yugoslav Republic of Macedonia (FYRoM) researchers work in the agrifood sector.

The vast majority of the research organisations (68%) employ less than 15 employees – more than half of them is a university unit. 24% of the respondents have between 16 and 50 employees, and 8% employs more than 50 people. 53% of the employees work in higher education institutions, 20% in public research institutes, 7% in business enterprises and 19% in other (not specified) institutions.

[1] The 313 researchers were probably indicated for public institutes only (and not higher education units).

Fig.8

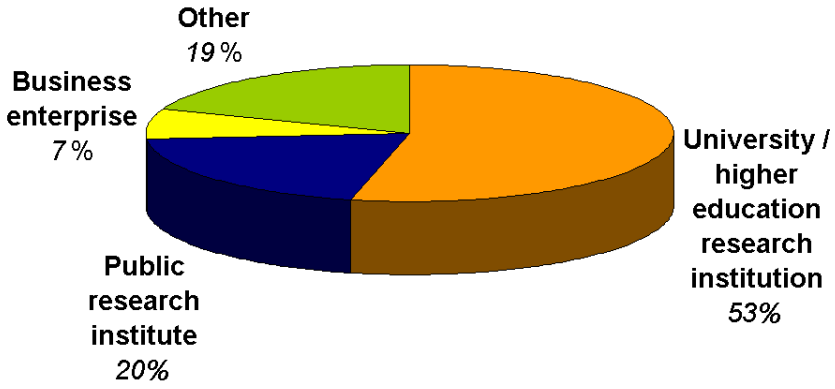
Research groups by size categories (%, respondents only)



Source: BAFN Survey, March 2008

Fig.9

Number of employees (2005, FTE) by organisation type (%)

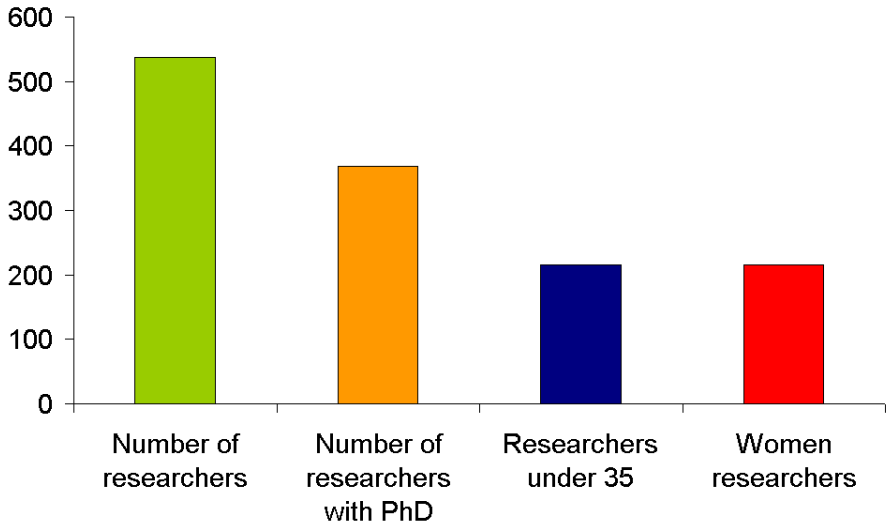


Source: BAFN Survey, March 2008

69% of the agrifood researchers have a Ph.D. degree or higher. 39% of the researchers are under 35 and the proportion of women is slightly under 40%.

Fig.10

Estimated number of agrifood researchers (FTE) in the public sector 2006-2007



Source: BAFN Survey, March 2008

More than half of the research personnel work on four scientific fields:

- economic, social and political aspects
- management of natural and biological resources
- plant production and protection.

Animal sciences seem to have a low share compared to the importance and potential of animal husbandry in the country.

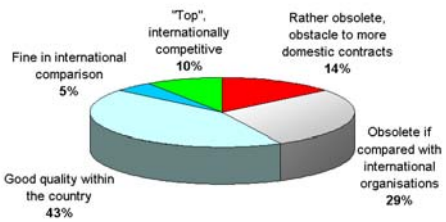
2.4. Research infrastructure

In Former Yugoslav Republic of Macedonia (FYRoM) **universities or higher education institutes seem to have better research infrastructure** than public research institutions: more than half of the universities or higher education institutes have at least good quality research infrastructure within the country and 60% of the public research institutions have obsolete research infrastructure.

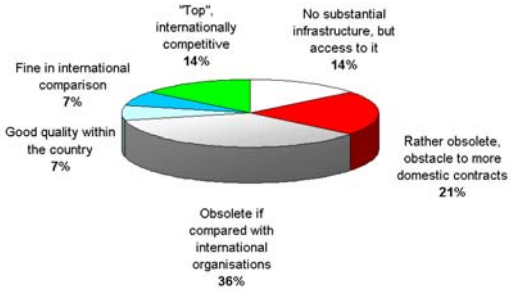
Fig.11

Quality of research infrastructure

university / higher education institutions



public research institutions



Source: BAFN Survey, March 2008

Most of the Former Yugoslav Republic of Macedonia (FYRoM) agrifood research units have outdated technological infrastructure, but the average is better than in other BAFN countries. However, for doing research in food technology, human nutrition and consumer concerns, and especially plant breeding and biotechnology infrastructure is rather inadequate – and many of the researchers work on these fields of science.

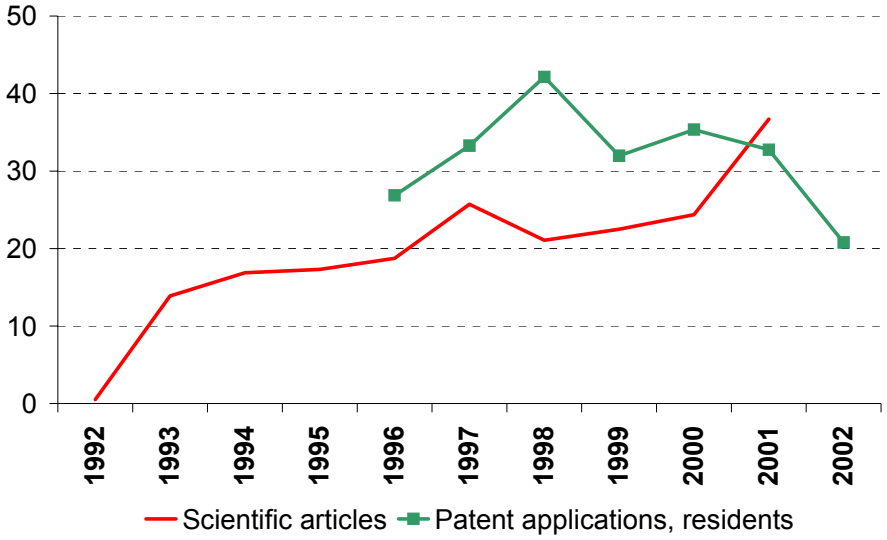
3. Agrifood research performance

3.1. Innovative and scientific output

The steadily increasing number of scientific and engineering articles per population shows that Former Yugoslav Republic of Macedonia (FYRoM) could start organising its public research with some success. Nevertheless, the number of patents per population is falling and both figures are very low in international comparison. **Quite some time is needed before Former Yugoslav Republic of Macedonia (FYRoM) becomes an innovation-driven economy**.

Fig.12

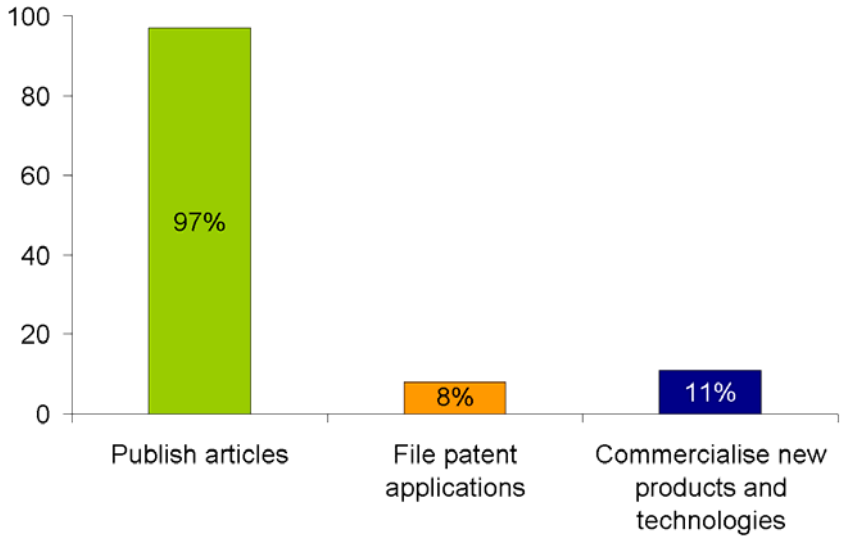
Scientific articles and resident patent applications per million people



Source: WDI 2006 database

The statement above is supported by the survey results as well. In agrifood research, over the last 3 years almost all research organisation published articles, but only 10% took part in the commercialisation of new products and technologies, while 8% filed patent applications. The latter two ratios are at the lower end as compared with the New Member States of the European Union (preliminary results from the *AgriMapping* project).

Fig.13
Scientific and innovation activity of agrifood research organisations (% of all agrifood research groups)



Source: BAFN Survey, March 2008

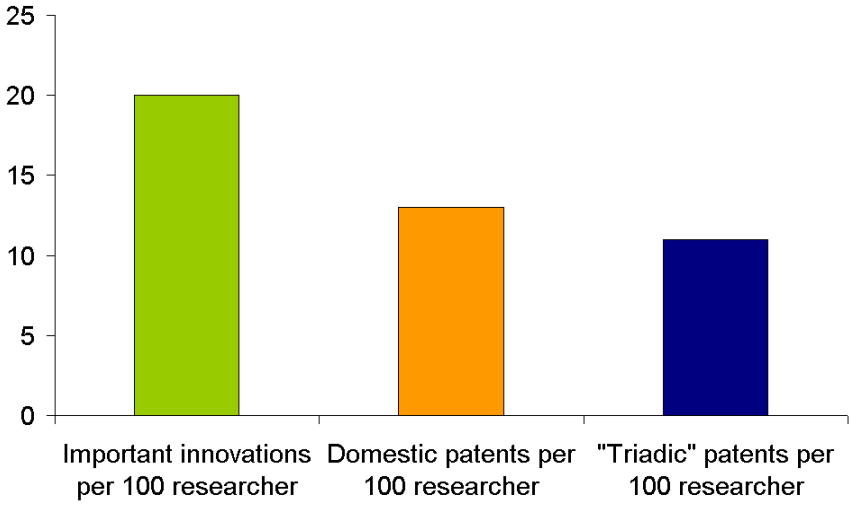
To measure the real innovative impact and relative scientific performance, the BAFN consortium decided to measure the following:

- *Important innovation*: a new product / technology / organisational mode / tool or method had or contributed to an additional turnover of more than EUR 100 thousand or more than 500 people use a new product/technology or it saved life or improved the quality of life substantially. The research organisation's contribution is substantial if at least one third of the new knowledge came from the research organisation.
- *Triadic patents*: patents granted by the EPO (European Patent Office) and/or JPO (Japan Patent Office) and/or the USPTO (United States Patent and Trademark Office).
- *International publications*: publications in journals reviewed by the Institute for Scientific Information

The research units of Former Yugoslav Republic of Macedonia (FYRoM) developed 20 important innovations, patented 11 Triadic and 13 domestic patents per 100 researchers between 2003-2005. These numbers are in the mid-range as compared with the New Member States of the EU, with the exception of international publications, which is lower (preliminary results from the *AgriMapping* project).

Fig.14

Innovation indicators



Source: BAFN Survey, March 2008

Table 4

Agrifood research activity by research areas

Research areas	Number of important innovations	Number of international patents (EPO, JPO, USPTO)	Number of large projects	Number of articles in international journals	Number of studies and reports*	Number of standards written**
Economic, social and political aspects	0	0	12	17	49	8
Food technology, human nutrition and consumer concerns	41	0	44	31	33	69
Engineering, mechanisation, ICT	0	0	0	17	3	2
Plant breeding and biotechnology	10	0	13	10	3	5
Plant production and protection	0	0	6	7	29	0
Animal production and husbandry	10	5	10	34	14	11
Animal health and welfare	0	0	0	4	11	3
Aquaculture and Fisheries	0	0	5	10	38	16
Forestry and landscape	0	0	1	3	1	0
Management of natural and biological resources	0	0	2	1	25	0
Horizontal issues	0	0	0	1	1	0
Not identified research area	14	35		0		
Total	**75**	**40**	**93**	**135**	**207**	**114**

* Only reports financed by and / or supplied to national (and international) organisations. The research group is a major contributor to these reports: at least one third of the knowledge should come from the research group.
** Only approved standards. The research group is a major contributor to these reports / standards: at least one third of the knowledge should come from the research
Source: BAFN Survey, March 2008

The **most significant research areas** in the agrifood sector by research activity according to the BAFN Survey (March 2008) are **food technology, human nutrition and consumer concerns, animal production and husbandry and economic, social and political aspects**. This finding is somewhat in accordance with the *Review Document* [2007], which states that improving food safety, production processes and raw material quality are important for the Former Yugoslav Republic of Macedonia (FYRoM) agrifood industry and also that land structure needs to be changed in the longer term.

3.2. Research competence

Research competence is shown by two rather different measures:

- the ability to take part in and conduct large *research projects*, in which the total project budget is above EUR 100 thousand and the research organisation's share is at least EUR 20 thousand;
- the ability to *attract foreign researchers* for doing real research work, which is defined with the help of the hosting period (hosting a foreign researcher for more than 6 weeks).

The number of ongoing large agrifood research projects was 89 in 2005 in Former Yugoslav Republic of Macedonia (FYRoM), of which 61% was realized in collaboration with industry, 74% was co-ordinated by the surveyed research organizations and 52% of the projects were organized relating the EU Framework Programme. 87 large projects were completed in 2005, of which 59% in collaboration with industry, 67% with in-house co-ordination and 49% in the

framework of European Union Programme. Large projects per 100 researchers are higher as compared with the New Member States of the EU, especially in terms of projects coordinated by the research organisations and projects in collaboration with industry (preliminary results from the *AgriMapping* project).

Table 5

Number of large agrifood research projects

	Ongoing / started in 2005	Completed in 2005
Number of large research projects*	89	87
Of which		
projects in collaboration with industry	55 (61% of total)	51 (59%)
projects in which the organisation co-ordinates	66 (74%)	58 (67%)
European Union Framework Programme projects	46 (52%)	43 (49%)

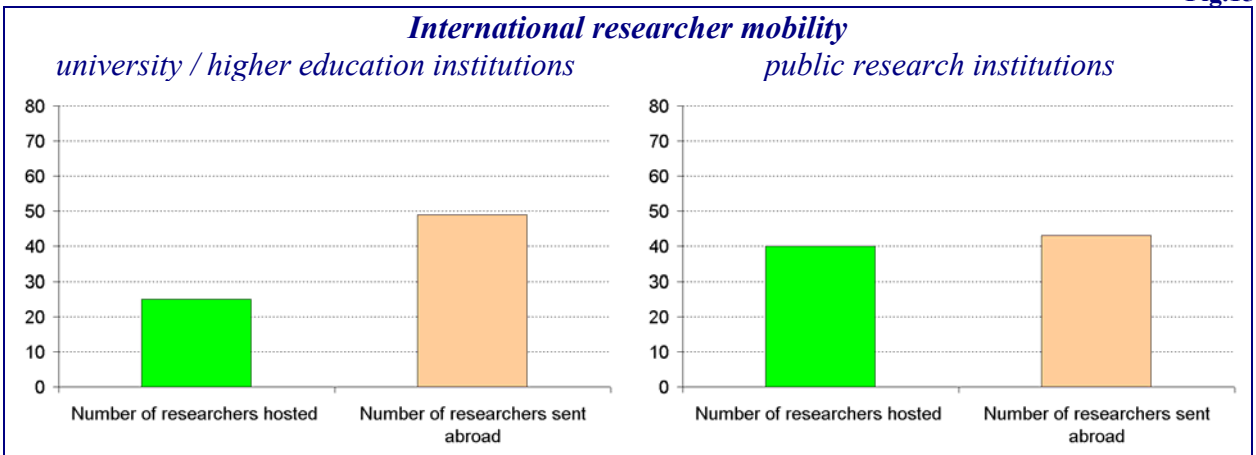
* the total project budget is above EUR 100 thousand and the organisation's share is at least EUR 20 thousand
Source: BAFN Survey, March 2008

The high share of EU Framework funded projects shows the **importance of the European Union** for Former Yugoslav Republic of Macedonia (FYRoM) agrifood research.

In 2003-2005 the total number of foreign researchers hosted for more than 1,5 months (without those, who came to acquire a Ph.D. degree) in the period 2003-2005 was 65, at the same time the number of researchers sent abroad to do research for at least 1,5 months was 92. Compared to the Former Yugoslav Republic of Macedonia (FYRoM) population and especially to the number of researchers, **the ability to attract foreign researchers is comparable with New Member States of the EU**.

Fig.15

International researcher mobility



Source: BAFN Survey, March 2008

International researcher mobility is the most intensive on the scientific fields of economic, social and political aspects, **plant breeding and biotechnology** and **plant production and protection food technology**. This finding is in line with the importance of these research areas in terms of human resources and infrastructure.

In relative terms (as a percent of researchers), Former Yugoslav Republic of Macedonia (FYRoM) attracts and sends more foreign researchers than the New Member States of the EU (preliminary results from the *AgriMapping* project).

4. Concluding remarks

Former Yugoslav Republic of Macedonia (FYRoM) is a transition economy that tries hard to adapt to market economy conditions. Although its agrifood industry is substantial, fragmentation of land and the missing statistical infrastructure put substantial obstacles to developing the sector. The former problem is a long-term challenge. Besides, the policy institutions of a national innovation system (NIS) are mostly missing.

After Serbia and Croatia, Former Yugoslav Republic of Macedonia (FYRoM) has the most substantial capacities for agrifood research among the BAFN countries (Albania, Bosnia-Herzegovina, Croatia, Former Yugoslav Republic of Macedonia (FYRoM), Serbia and Montenegro). The sector is dominated by state-owned institutions (two ministries share the role of supporting the government-dominated agrifood research sector), but higher education units receive partly their financing on a competitive basis and public research units also do so. As a result, Former Yugoslav Republic of Macedonia (FYRoM) agrifood research is somewhat forced to have linkages with industry, and the proportion of such linkages is high in the BAFN group of countries.

The number of researchers in the agrifood sector cannot be estimated precisely, but a figure of 500-550 seems justifiable. It would not be a surprise if half of the Former Yugoslav Republic of Macedonia (FYRoM) researchers worked in agrifood research, implying also a substantial portion of Former Yugoslav Republic of Macedonia (FYRoM) R&D expenditures.

Agrifood research capacities are concentrated on the scientific fields of food technology, human nutrition and consumer concerns, animal production and husbandry and economic, social and political aspects. The general state of agrifood research infrastructure is somewhat better then in other BAFN countries.

According to the country's ability to attract foreign researchers, some quality agrifood research is present in Former Yugoslav Republic of Macedonia (FYRoM). Nevertheless, future success seems to be dependent on the speed of the catching-up process and the international community.

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Nations Encyclopedia

Review document on the current situation for Former Yugoslav Republic of Macedonia (FYRoM). BAFN working paper 2007. Written By: Government of RM, Sector for EU integration, Government of RM, Ministry for Education & Science (MoES), Government of RM, Ministry of Agriculture, Forestry and Water Economy (MAFWE) - Revised by ETAT S.A.

Science, Technology and Economic Development in South Eastern Europe, Milica Uvalic, Regional Bureau for Science in Europe (ROSTE), UNESCO Office in Venice

World Development Indicators 2006 database

Annex: Agrifood research organisations in «FORMER YUGOSLAV REPUBLIC OF MACEDONIA (FYRoM)"

	Name	X, if took part in the BAFN survey
	Institute "GAPE" (Skopje)	
	Agency for motivating the development of agriculture	X
	Macedonian Academy of Science and Arts (MANU)	
	Department for Biology & Medical Science	
	Research centre for Genetic engineering & Biotechnology	X
	Macedonian Scientific Association (MDN)	
	RR-group 2006	
State Phytosanitary Laboratory		
	Department for Diagnostics of Harmful Organisms	X
University „Ss Cyril & Methodius„		
Faculty for Agriculture Sciencies and Food		
	Department of Agricultural Economics	X
	Department of Agricultural Machinery	
	Department of Agricultural Practices and Herbology	
	Department of Botany and Microbiology	X
	Department of Field Crops and Tobacco Production	
	Department of Food Technology	X
	Department of Fruit Production and Processing	X
	Department of Genetics and Plant Breeding	X
	Department of Livestock Production	
	Department of Plant Protection	X
	Department of Soil Sciences, Agrochemistry and Land Reclamation	X
	Department of Vegetable and Flower Production	X
	Department of Viticulture and Enology	
Faculty for Forestry		
	Department for Economy and Organisation of Forests	X
	Department for Anatomy and Technical Specification of Wood	
	Department for Botanics and Dendrology	
	Department for Composit Materials	
	Department for Constructions and Production Preparation	
	Department for Final Produsction Technologies	
	Department for Forest and Wood Protection	X
	Department for Forest expoatation and transport	
	Department for forest genetics and species	
	Department for Forest Managmet and Raising	
	Department for Hunting	
	Department for Land and Water	X
	Department for Machinery, Energy and Transport	
	Department for Primary Wood Processing	
	Depatment for Forest Lendscaping	
Faculty for Medicine*		
	Department of Microbiology and Parasitology*	
	Department of Pharmacology and Toxicology*	
	Department of Hygien*	
	Department of Medecine of labour*	
	Department of Epidemiology and statistic and informatic*	
Faculty of Natural Sciences and Mathematics		
	Institute for Biology	
Faculty Technology and Metalurgy		
	Department of Food & Bio Technology	
Institute of Agriculture		
	Deapartment for Field Crops and Gardening	X
	Deaprtmet for Vinyards and Vine	X
	Department for Economical Analysis & Project Planning	X

Name		X, if took part in the BAFN survey
	Department for Fruit Growing	X
	Department for Plant Protection	X
Institute of Southern Crops		
	Department for agro-technology	X
	Department of Plant Protection	
	Department of Plant Biotechnology	X
	Department of Plant Genetics and Breeding	X
Veterinary Faculty		
	Institute for Food	X
	Institute for Reproduction, Genetics and Animal Breeding	
	Institute for Veterinary Biomedicine	X
	Institute for Veterinary Medicine	
University St Kliment Ohridski		
Faculty of Biotechnical Sciences		
	Departement of Agro-economy, Menagment and Marketing	X
	Departement of Biology and Microbiology	
	Departement of milk production and dairy products	X
	Departement of Plant production and food	X
	Departement of veterinary medecine	X
	Department of agriculture and food processing equipement	
	Department of breeding and animal nutrition	X
	Department of Chemistry and biochemistry	
	Department of production and meat transformation	X
	Statistics, Economics, Entrepreneurships and Insuring in agriculture	
Institute of Hydrobiological Sciences		
	Department for Bental Fauna	
	Department for Chemical and Physical researsh	X
	Department for Ciprinidae and floor Fauna	X
	Department for Macrophytic Vegetation	
	Department for Microbiology	
	Department for Parasytes and Ilnesses of Fish	X
	Department for Phitoplancton Research	X
	Department for Zooplancton research	
	Department of Salmonidic Fauna research	
Tobacco Institute - Prilep		
	Departement for Agrocultural technological, Nutrition and Irrigation	X
	Departement for selection and production grain	
	Department for tobaco Technology, Fermentation and Production	
	Department of Agrochemistry	
	Department of Tobacco Protection, Enthmology & Phytopathology	

*Additions in March 2008, after the review of the first version of this report
Source: *Review Document for Former Yugoslav Republic of Macedonia (FYRoM)* [2007]