



Agricultural research - innovation and its dissemination in Poland

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Sources of data: Central Statistical Office of Poland, Ministry of Agriculture and Rural Development, Ministry of Science and Higher Education, European FP7 project Multisward

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Agriculture and food economy in Poland – selected facts and figures

EU Member State from May 2004

Location: Central Europe

Total land area: 312 685 km² (6th biggest country among EU)

Population: 38 million (6th place in EU)

Population in rural area: 9.4 million (1st place in EU)

Share of people employed in agriculture, hunting, forestry and fisheries: 14.5%

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Agriculture and food economy in Poland – selected facts and figures

Surface area of agricultural land: 15.4 million ha

Average area of agricultural land per farm: 8.7 ha

Economic growth in 2012: 2.0% of real GDP (> average EU-27)

Budget expenditures on science: 0.44% (lowest share in the EU)

Share of business (funds of enterprises and own funds of the institutions belonging to the state science sector) in gross domestic expenditure on R&D: 33.1% (one of the lowest share in the EU)

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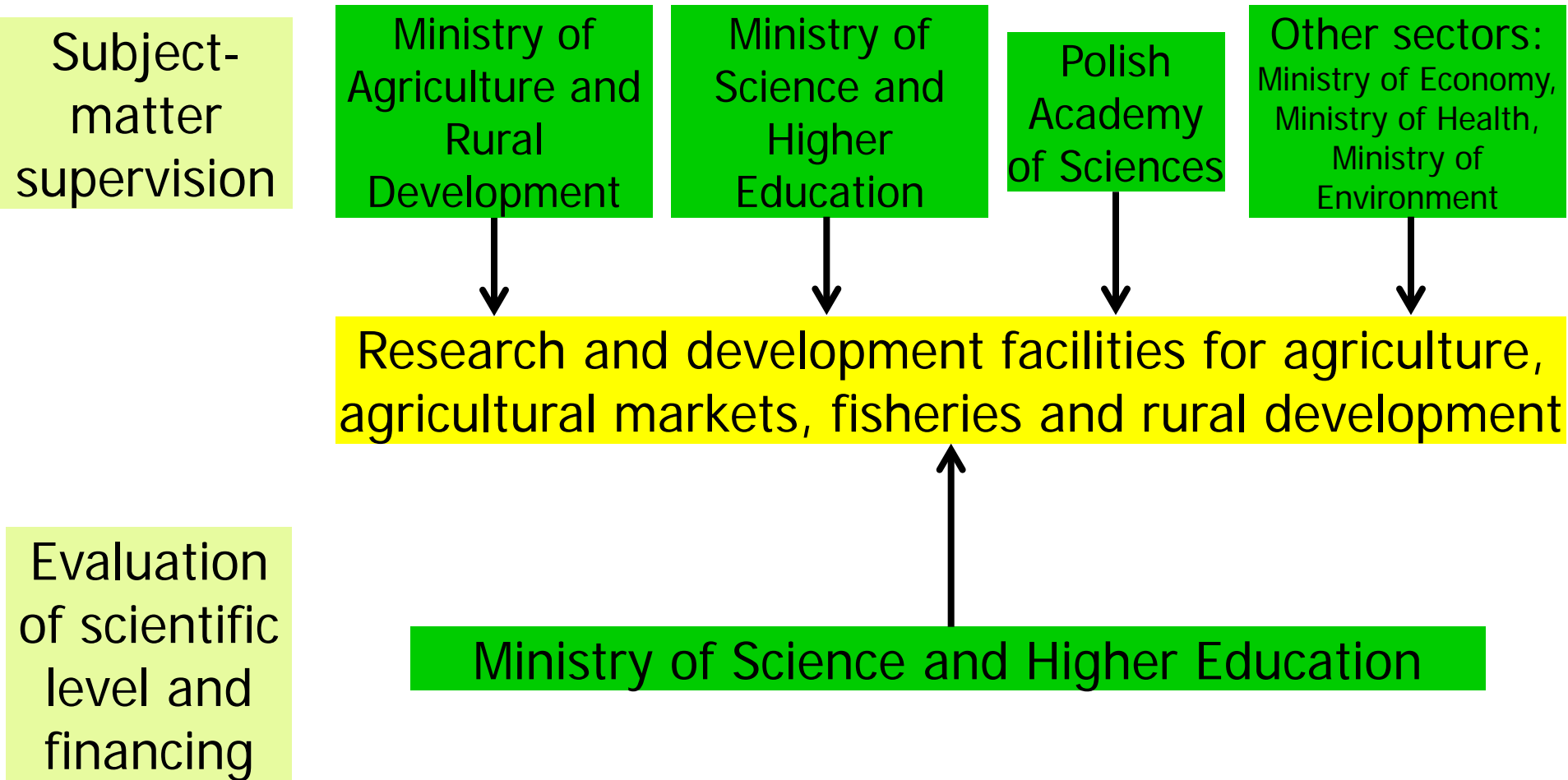


Scientific and research institutions in the broadly understood field of agriculture

- 12 research institutes supervised by the Minister of Agriculture and Rural Development (7 of them hold a prestigious status of a National Research Institute)
- 47 faculties at 9 universities supervised by the Minister of Science and Higher Education
- 9 scientific institutes of Polish Academy of Sciences (PAS)
- and partially, research institutions supervised by the Minister of Environment, Minister of Economy and Minister of Health



Organization and supervision structure of research and scientific institutions in the field of agriculture



Criteria of scientific level evaluation of research institutions (parametric evaluation)

1. scientific publications and monographs cited by Web of Sciences and other scientific publications not indicated in Philadelphia list
2. patents and implementations
3. participation in international R&D projects
4. development of human scientific resources
5. practical effects of R&D works
6. other achievements of economic and social nature as the effects of R&D works
7. other activities (organization of conferences, courses, certification of laboratories, etc.)



Practical effects of R&D works in parametric evaluation

- new technologies, materials, products, methods, software developed for other entities on the basis of agreements concluded by the scientific institutions (the indicator in this case is amount of money in the agreement)
- expertises and the development of scientific activities commissioned by businesses, organizations, institutions, government and foreign or international entities (the indicator in this case is amount of money in the agreement)
- list of licenses sold and paid for the transfer of know-how



Other achievements of economic and social nature as the effects of R&D works in parametric evaluation

- use the results of R&D of high public interest e.g. health, environmental protection, quality and food safety, or economic e.g. new technologies and products, implementation, licensing and operations to enhance innovation
- effects resulting from the development of research infrastructure, including research databases
- dissemination of knowledge (science festivals and other forms of promotion and popularization of science) and the activities of popular science, including organizing or co-organizing popular and artistic events (festivals, competitions, exhibitions)



Opinion about parametric evaluation of agricultural R&D institutions

- publications and monographs cited by Web of Sciences (impact factor, Hirsch index, etc.) – **very high appreciated**
- patents and implementations – **very high evaluated**
- participation in international R&D projects – **welcome but mainly in the background of scientific publications not implementation in the practice**
- practical effects of R&D works – **underestimated**
- other achievements of economic and social nature as the effects of R&D works – **underestimated**

Effect: Scientists are focusing on publications mainly in appreciated international journals and not interesting in implementations of their results into practice

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Basic funds for scientific, research and development in agriculture

- state subsidy of the Ministry of Science and Higher Education
- budget of the Ministry of Agriculture and Rural Development (for implementing tasks under multiannual programmes, biological progress and environmental research)
- participation of institutions in state and international grants and technical and scientific cooperation programmes
- rendering services and conducting scientific projects for economic entities
- other sources e.g. advisory services and publishing information, interest on capital, lease of property, etc.

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Financing of R&D in the new system of science in Poland

- financing of scientific R&D works moved from the Minister to the National Centre for Research and Development and the National Centre for Science
- the above entities able to focus on effective implementation of the pro-quality policy thanks to the newly introduced mechanisms and procedures
- this solution conforms to the European tendency to limit competences of state authorities to the advantage of independent institutions tasked with financing of scientific R&D works



Initiatives focusing on innovations in R&D - examples

- Innovation Package (e.g. changes in the law on public procurement to facilitate conducting scientific research, the possibility of donating 1 percent CIT to the best research units)
- Bridge VC programme
- Top 500 Innovators Programme
- Brokers of innovations
- developing innovative curricula by universities

funds available under the Operational Programme Smart Growth in the new EU financial perspective

positive response in other sector of economy, insufficient in agriculture science

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Agricultural scientists in Poland (2012 data)

	Universities/ other higher schools	Research institutes of MARD	Research institutes of PAS	Research institutes of other sector	Total
Professors and associate professors	903	161	142	46	1252
PhD/assista nce prof.	824	144	99	32	1099
PhD holders	3573	612	283	196	4664
Total	10211	3895	558	1108	15772

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Dissemination of scientific results into practice in R&D institutions

coordinated

- Centre of Innovation and Technology Transfer
- Bureau for Collaboration with Practice
- Centre of Excellence

**established only in a few institutions; effects of activity
such units are unfortunately poor**

not coordinated

- individual activity of scientists (collaboration with media, extension services, companies of agri-food sector, etc.)

**decreasing number of scientist involved in
dissemination into practice**

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Agricultural advisory services

- agricultural advisory centres (ODRs) operating in each voivodeship (legal entities, since 1 August 2009 reporting to relevant voivodeship parliaments, similar structure defined by the MARD)
- Agricultural Advisory Headquarters (CDR) with three branch offices located in Poznań, Krakow and Radom
- accredited agricultural advisors (157 entities in agriculture and 271 entities in forestry)

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Agricultural advisory centres – basic tasks and education techniques

- Basic tasks:
 - rendering advice to farmers in farm management according to the EU requirements
 - support of sustainable development of rural areas, including promotion of entrepreneurship,
 - activating rural communities, development of tourism and rural tourism, etc.
- Education techniques:
 - organization of training, courses, conferences, seminars, fairs, exhibitions, contests
 - publishing magazines and brochures

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Agricultural Advisory Headquarters – basic tasks

- responsibility for developing skills by agricultural advisors
- keeping official lists of agricultural advisors which are authorized to give advice in respect of agriculture, forestry, agri-environmental schemes
- keeping a list of environmental experts
- conducting inspections of private advisory entities accredited by the MARD

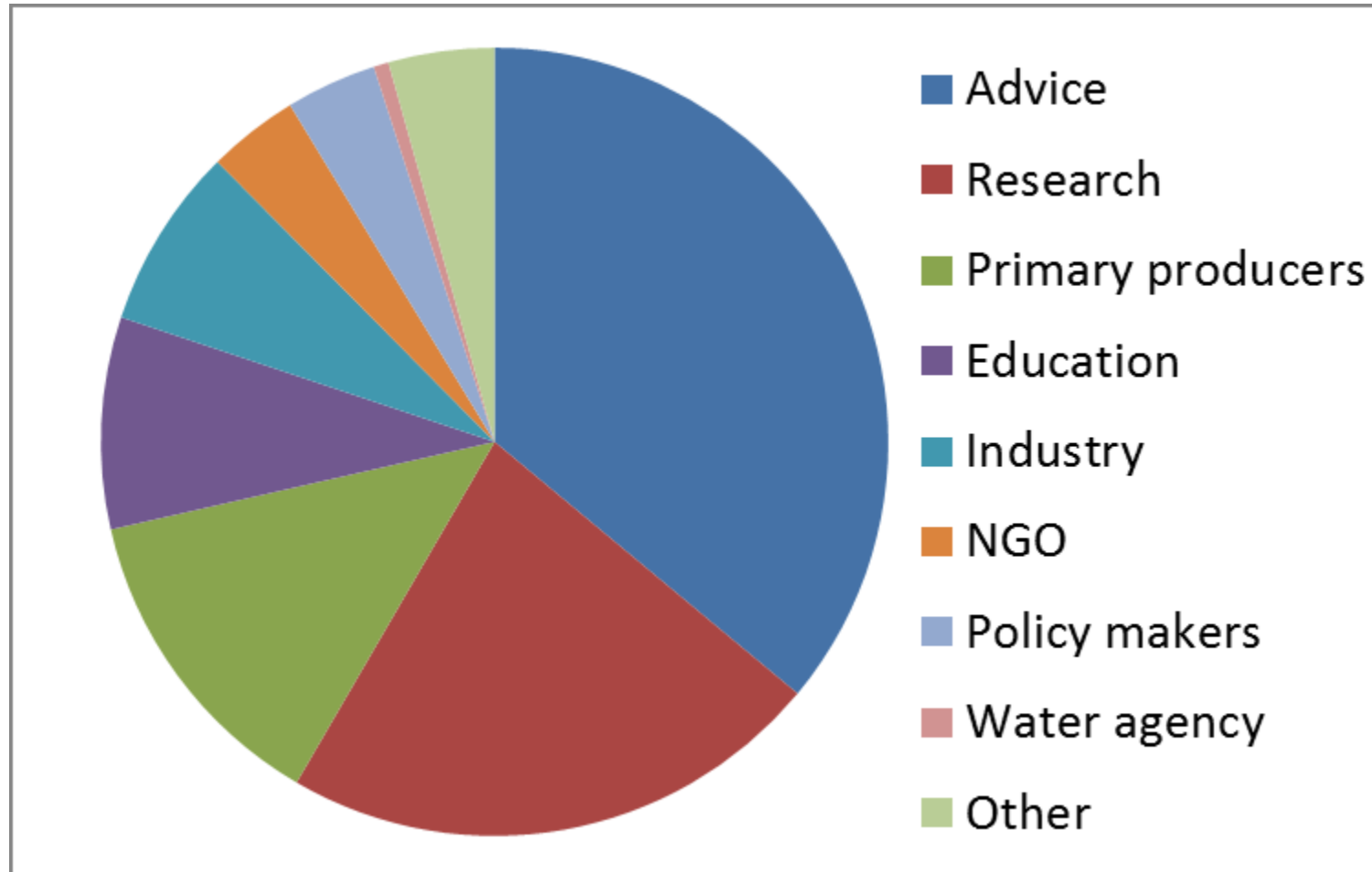


Other stakeholders involved in dissemination of R&D in agriculture in Poland

- agricultural chambers
- 45 agricultural schools in which 12 thousand students study under a supervision of approx. 1430 teachers
- industry of agri-food sector (high importance in technological dissemination of R&D results)
- water agencies (occasional involvement)
- NGOs (focusing on particular topics)
- policy makers

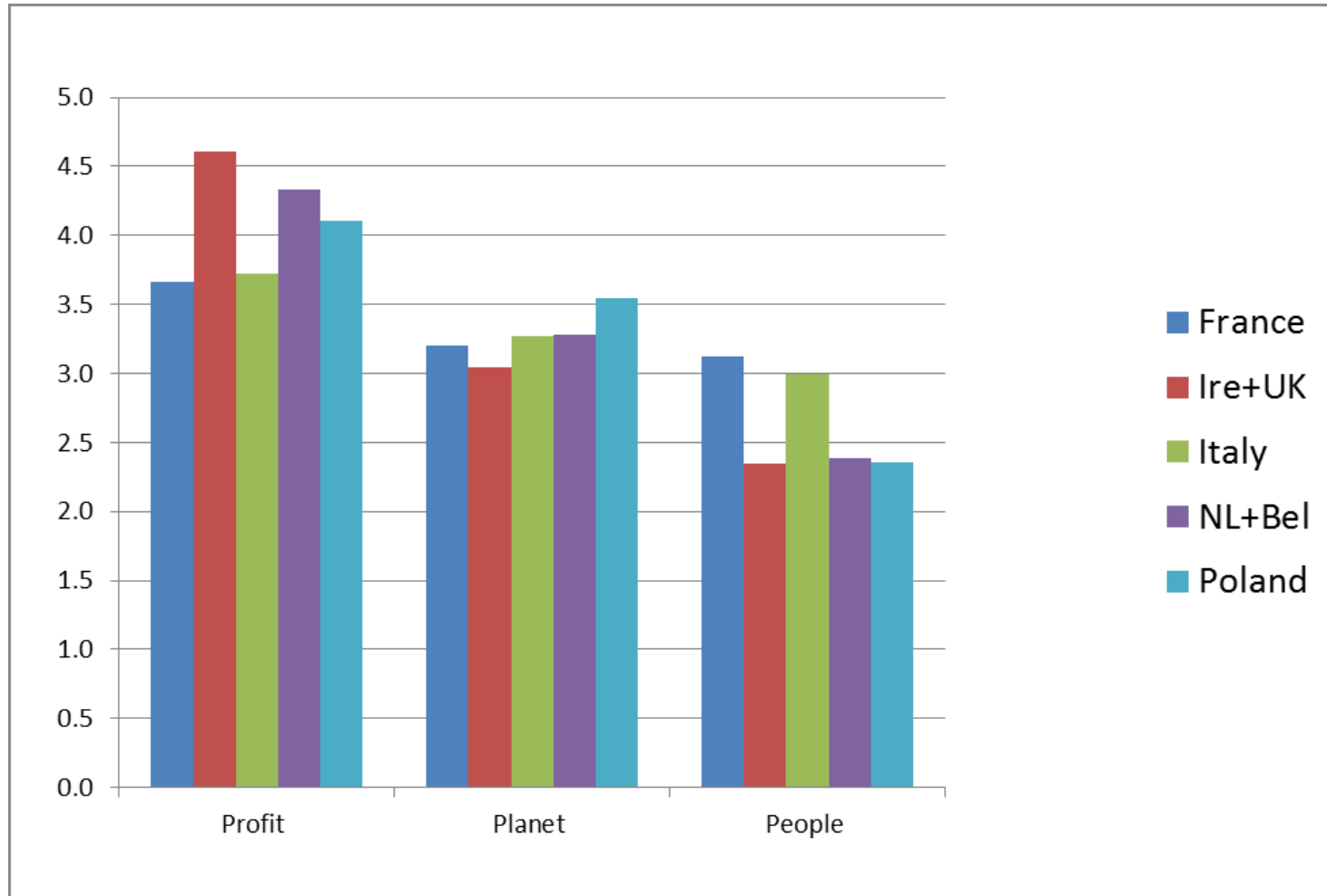


Distribution of responses to the questionnaire about multifunctionality of grassland over stakeholders



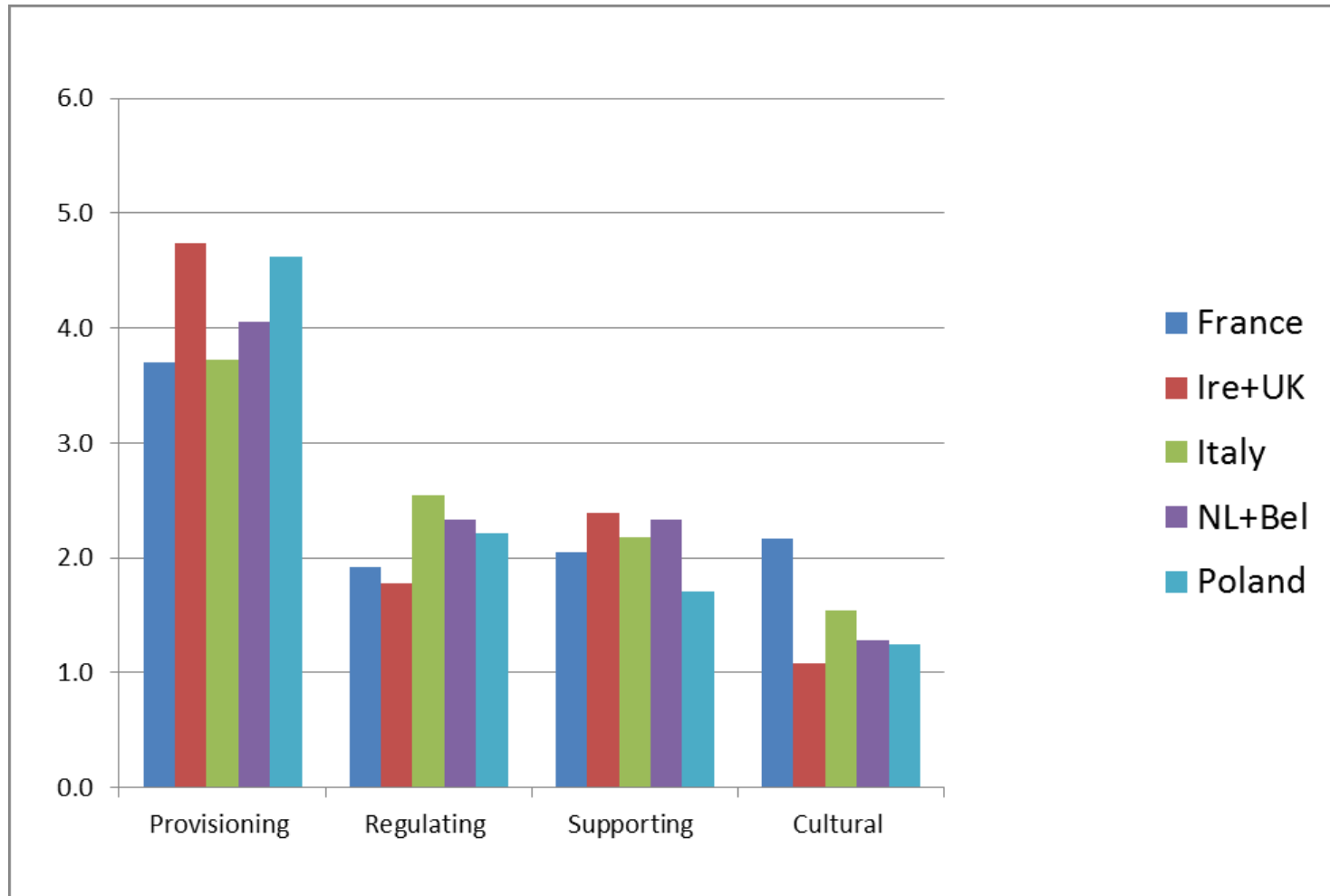
Importance of aspects of sustainability in different regions

(total of people, planet and profit equals 10 for each region)



Importance of ecosystem services for different stakeholders

(total equals 10 for each stakeholder group)



Final remarks

- important role of agricultural sector in Polish economy
- demand for research and innovations in agriculture and food economy in Poland
- diversification of R&D institutions involved in agricultural science
- financing of R&D entities mainly according to publications in scientific journals
- threat of existing agricultural science in the new system of science and higher education
- difficulties of developing and transfer of innovations in agricultural science
- gaps in dissemination system
- engagement of stakeholders in „producing” agricultural knowledge and innovations

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