The Ministry Education and Science, ul. Wspólna 1/3, 00-529 Warsaw 53	1/21
MN-02 **Questionnaire on biotechnology in firms** **for 2022**	Statistics Poland Report Portal raport.stat.gov.pl Statistical Office in Szczecin 70-530 Szczecin ul. Matejki 22 Deadline for submission: 28.04.2023

The obligation to submit data arises from Article 30, Paragraph 1, Subparagraph 1 of the Act of 29 June 1995 on Official Statistics (Journal of Laws of 2022, item 459, as amended).

Data collected with the use of the following questionnaire are granted absolute protection in accordance with the statistical confidentiality principle (Article 10 of the Official Statistics Act).

(e-mail of the unit filling in the questionnaire – FILL IN WITH CAPITAL LETTERS)

Data on the firm

REGON	

What is biotechnology?

The interdisciplinary application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services (the OECD 2001).

The statistical survey concerns **biotechnology firms**, that is, firms engaged in biotechnology by using at least one biotechnology technique (according to a list of techniques mentioned in Section 1 of the questionnaire) to produce goods or services and/or to conduct biotechnology R&D (see Explanations: General information and Annex 1 to questionnaire MN-02).

1. Biotechnology

2.

Types of used biotechnology techniques [a)]		Were biotechnology methods used in your firm in 2022			Is the firm going to use biotechnology methods in the next 3 years?
		both for R&D and current production	only		
			for R&D	for production	
0		1	2	3	4
DNA/RNA- genomics, pharmacogenomics, gene probes, genetic engineering, DNA/RNA sequencing/synthesis/amplification, gene expression profiling, the use of antisense technology, large-scale DNA synthesis, genome- and gene-editing, gene drive	01	☐	☐	☐	☐
Proteins and other molecules - sequencing/synthesis/engineering of proteins and peptides, improved delivery methods for large molecule drugs, proteomics, protein isolation and purification, signalling, identification of cell receptors	02	☐	☐	☐	☐
Cell and tissue culture and engineering - cell/tissue culture, tissue engineering, cellular fusion, vaccine/immune stimulants, embryo manipulation, marker assisted breeding technologies, metabolic engineering	03	☐	☐	☐	☐
Process biotechnology techniques - fermentation using bioreactors, biorefining, bioengineering, biocatalysis, bioprocessing, bioleaching, biopulping, biobleaching, biodesulphurisation, bioremediation, biosensing, biofiltration and phytoremediation, molecular aquaculture	04	☐	☐	☐	☐
Gene and RNA vectors - gene therapy, phage therapy, viral vectors	05	☐	☐	☐	☐
Bioinformatics - construction of databases on genomes, protein sequences, modelling complex biological processes, including systems biology	06	☐	☐	☐	☐
Nanobiotechnology - applies the tools and processes of nano/microfabrication to build devices for studying biosystems and applications in drug delivery, diagnostics etc.	07	☐	☐	☐	☐
Other[b)] (please specify techniques not mentioned in rows 01-07)**:** ☐	08	☐	☐	☐	☐

Explanation: Please mark X in boxes in appropriate rows.

If X is marked in at least one row in columns 1, 2 or 3 → please go to section 2.
If X is not marked in any row in column 1, 2 or 3 → please go to section 9.

In an exceptional situation, if a firm incurred expenditures and hired personnel in the previous years and currently only sells manufactured product, please contact a statistician in order to unlock section 6 for filling in.

a) See Annex 1.
b) Specify only if techniques have never been previously used in the world.

2. Biotechnology activities of the firm by areas of biotechnology application

Area of biotechnology application		R&D	Pre-clinical trials /initial production trials	Regular clinical trials / full production trials	Production
0		1	2	3	4
Human health – large molecule therapeutics and monoclonal antibodies produced using rDNA technology	01	☐	☐	☐	☐
Human health – other therapeutics, artificial substrates, diagnostics and drug delivery technologies, etc.	02	☐	☐	☐	☐
Veterinary health – as in rows 01 and 02 applied to veterinary health	03	☐	☐	☐	☐
Genetically modified agricultural biotechnology – new varieties of genetically modified (GM) plants, animals and microorganisms	04	☐	☐	☐	☐
Non-genetically modified agricultural biotechnology – new varieties of non-GM plants, animals and microorganisms developed using biotechnology techniques, bio-pest controls, etc**.**	05	☐	☐	☐	☐
Natural resource extraction and forestry products –energy, mining, forestry products, etc.	06	☐	☐	☐	☐
Environment – diagnostics, bioremediation, waste disposal, clean production, etc	07	☐	☐	☐	☐
Industrial processing – food, cosmetics, fuels, chemicals (e.g. enzymes), plastics, etc**.**	08	☐	☐	☐	☐
Bioinformatics – construction of genome / protein sequence databases, modelling complex biological processes, systems biology**,** etc.	09	☐	☐	☐	☐
Non-specific applications – research tools, etc.	10	☐	☐	☐	☐
Other (please specify):	11	☐	☐	☐	☐
Which areas of biotechnology activity prevails in your firm? (please provide number of row)	12				

Explanation: Please mark X in boxes in appropriate boxes.

3 Was a circular economy used in biotechnology in your firm?

yes ☐ no ☐

4. Personnel in biotechnology in the firm by level of education and type of activity in 2022

Level of education				Total (columns 2+ 6)	Number of persons employed					
					in R&D		of which researchers [a]		in production	
					total	of which women	total	of which women	total	of which women
0				1	2	3	4	5	6	7
Total			01							
of which	with title of professor		02							
	with academic degree of	doctor	03							
		habilitated doctor	04							
	with other tertiary education		05							
	with other level of education		06							
Number of full-time equivalents (FTE) [b] *Provide number to one decimal place.*			07							

[a] Persons conducting research and improving or developing concepts, theories, models, techniques, instrumentation, software or operational methods.
[b] Provide the number of persons employed in biotechnology together persons with working on the basis of a mandate contract or a contract for specific work in conversion units called full-time equivalents.

5. Financing activities in the firm, including in biotechnology, by source of funding and areas of biotechnology application in 2022 (intramural expenditures)

Specification			Total	of which R&D intramural expenditures
			in thousand PLN to one decimal place	
0			1	2
Intramural expenditures actually incurred (without depreciation of fixed assets) – **total** expenditures in the firm [a]		1		
Expenditures on **biotechnology** [b]		2		
of which	capital expenditures	2.1		
	current expenditures	2.2		
	of which labour costs	2.2.1		
Out of intramural expenditures (row 2) on (rows 3 + 4 = row 2)				
Internal funds [c]		3		
of which credits, loans and other financial liabilities		3.1		

External funds [d] (rows 5 + 6 = row 4)	**4**		

5. Financing activities in a firm including in biotechnology by source of funding and areas of biotechnology application in 2022 (intramural expenditures) continued

Specification				Total	of which R&D intramural expenditures
				in thousand PLN to one decimal place	
Of which from:	domestic entities (rows 5.1 + 5.2 + 5.3 + 5.4 = row 5)		**5**		
	of which from:	government sector	**5.1**		
		higher education sector	**5.2**		
		business enterprise sector	**5.3**		
		private non-profit sector	**5.4**		
	of which out of row 5	scientific institutes on the Polish Academy of Sciences	**5.5**		
		research institutes	**5.6**		
	foreign entities (rows 6.1 + 6.2 + 6.3 = row 6)		**6**		
	of which from:	business enterprise sector	**6.1**		
		higher education sector	**6.2**		
		structural and other European funds	**6.3**		
out of expenditures on biotechnology (row 2) on areas of biotechnology applications	human health		**7**		
	veterinary health		**8**		
	agricultural biotechnology		**9**		
	natural resource extraction and forestry products		**10**		
	environment		**11**		
	industrial processing		**12**		
	bioinformatics		**13**		
	non-specific applications		**14**		
	other		**15**		

[a] Provide all expenditures, regardless of the source of funds, capital and current, incurred during a reporting year on all types of activity also apart from biotechnology. [b] Rows 2 - 15 concern expenditures on biotechnology. [c] Own funds, funds from credits and received from tax reliefs. [d] Funds received from domestic and foreign entities.

6. Value of sales of products (goods and services) manufactured in the firm including biotechnology products in 2022

Specification		Value of sales in transaction prices (in thousand PLN to one decimal place)		
		total	of which sales to	
			domestic market	foreign market
0		1	2	3
Total	**1**			
of which biotechnology products	**2**			
of which R&D products	**2.1**			

7. Submitted patent applications and granted patents in biotechnology in 2022

Specification		Number
0		1
Number of patent applications submitted to the Patent Office of the Republic of Poland in 2022	01	
How many patent applications, out of patent applications provided in row 01, is the unit going to submit to foreign patent institutions?	02	
Number of patent applications submitted to foreign patent institutions in 2022	03	
Number of patents granted by the Patent Office of the Republic of Poland in 2022	04	
Number of patents granted by foreign institutions in 2022	05	

8. Which of the following factors constituted a barrier to biotechnology R&D and/or commercialisation of biotechnology products in the firm

Factors		R&D	commercialisation of products
0		1	2
Obtaining funds	01		
Innovation costs	02		
Availability of skilled personnel	03		
Access to information on new technologies	04		
Lack of market	05		
Legal regulations	06		
Tax regulations	07		
Intellectual property protection	08		
Co-operation with other units	09		
Clients' reaction to new products	10		

Explanation: please mark X in appropriate rows and columns

9. Research (partner) co-operation in biotechnology R&D by areas of biotechnology application

Specification		Partner institutions from sectors:				
		business enterprise	government	higher education	private non-profit	abroad
0		1	2	3	4	5
Human health	01					
Veterinary health	02					
Genetically modified agricultural biotechnology	03					
Non-genetically modified agricultural biotechnology	04					
Natural resource extraction and forestry products	05					
Environment	06					
Industrial processing	07					
Bioinformatics	08					
Non-specific applications	09					

Explanation: please provide the number of partner institutions in appropriate rows and columns

10. Financing (from internal funds) biotechnology R&D conducted outside the reporting unit in 2022

Specification			in thousand PLN to one decimal place
Total funds transferred (rows 02+03+04+05+06+07+08)		01	
of which transferred funds to	scientific units of the Polish Academy of Sciences	02	
	research institutes	03	
	higher education institutions	04	
	business enterprises	05	
	private non-profit institutions	06	
	other domestic entities	07	
	foreign entities	08	

11. Purchases of biotechnology patents and licences

Specification			Number
Total patents and licences		01	
of which	domestic suppliers	02	
	foreign suppliers	03	

12. Did your firm undertake in 2022 any activities in relation to COVID-19 aimed at:

Specification		YES	NO
0		1	2
Development of COVID-19 vaccine	01		
Development of medication for COVID-19	02		
Development of device used in COVID-19 diagnostics	03		
Development of serological tests to detect SARS-CoV-2 antibodies	04		
Development of molecular tests	05		
Sequencing virus RNA	06		
Other activities [a)]	07		
If 'yes' to question 07 (other activities), please specify undertaken activities.	08		

a) E.g. developing products used during fight against COVID-19, collecting samples for testing, transport.

13. Comment

Thank you for filling in a questionnaire. You can provide us with feedback related to filled in questionnaire or suggestions for its modification below.

Please provide estimated time (in minutes) dedicated to collecting data needed for filling in a questionnaire	1	
Please provide estimated time (in minutes) dedicated to filling in a questionnaire	2	

14. Data of a person responsible for filling in the questionnaire

E-mail	
Telephone	