



AGRICULTURAL ACADEMY

AGRICULTURAL ACADEMY, BULGARIA



Agricultural Academy

WHO WE ARE?

- The only specialized scientific institution in Bulgaria for research, consulting and training in the field of agriculture subordinated to the Ministry of Agriculture and Ministry of Education and Science.
- Our activity is connected to realization of the strategic objective of ensuring food security, protecting natural resources and improving the quality of life.

WHAT ARE OUR STRENGTHS?



Experience and traditions in the organization and management of agricultural science.



Long-term close cooperation with the Ministry of Agriculture for the formation and implementation of agrarian policy of the state.



Integration of all functional units of the innovation process in agriculture from the idea to the scientific product.



Established regional network of institutes and experimental stations performing research, application and consulting services.

Structure of the Agricultural academy



25 institutes;
4 Scientific centers and
13 experimental stations
across different agro-
ecological regions in Bulgaria

Basic activities

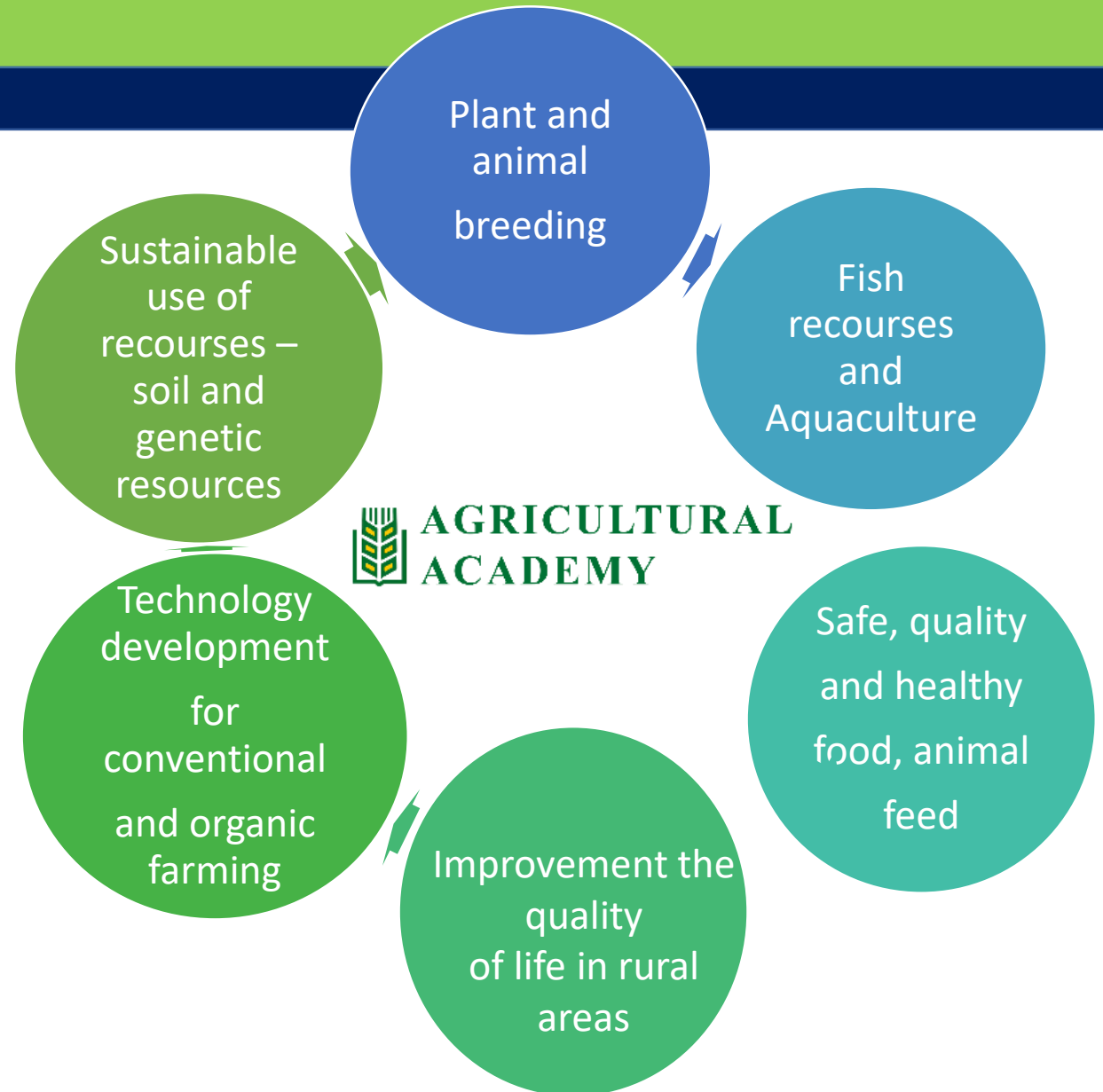
Research

Scientific-applied

Controlling and assessing

Advisory

Informational and educational



Main research priorities

- Genetics and plant breeding studies. Development of new varieties with increased productivity and quality, adapted to market and climate changes;
- Sustainable and effective management of resources (ecosystems, soils, waters, biomass) under climate changes, mitigating the impacts of climate changes;
- Development of conventional and organic farming systems, new solutions for integrated plant protection management in agro-ecosystems;
- Genetics and animal breeding studies, improvement of feeding, animal welfare and mitigation of harmful ecological effects;
- Sustainable fisheries and aquaculture development;
- Development of technologies for safety, quality and healthy foods, drinks and other food products

GENETIC AND PLANT BREEDING STUDIES FOR DEVELOPMENT OF NEW VARIETIES WITH INCREASED PRODUCTIVITY AND QUALITY, ADAPTED TO MARKET AND CLIMATE CHANGES



- Development of new varieties and hybrids of the main agricultural crops with high ecological plasticity, yield stability and resistance to biotic and abiotic stress factors.
 - *cereals* – common and durum wheat, maize, barley, oats, rice;
 - *technical crops* – sunflower; tobacco, cotton;
 - *vegetable crops* – tomato, pepper, onion, egg plants, potato, etc.
 - *fruit trees* - sweet & sour cherry, apple, pear, plum, table grape, pome and stone species, walnut, hazelnut, black currant, raspberry & strawberry, kiwi, etc.
 - *forage crops* – alfalfa, sailfin, birds foot trefoil, winter and spring pea and vetch, sudan grass, tall and red fescue, smooth brome grass, perennial ryegrass, phacelia, timothy-grass, white & red clover; cocksfoot;
 - *legumes* – soybean, beans, peanut;
 - *oil-bearing and ornamental crops* – rose, lavender; gypsophila, gladiolus, lily, spray carnation, Limonium, Goniolimon
- Preservation, maintenance and enrichment of the plant gene pool. Development of programs and methods for long-term conservation of biodiversity of local plant varieties and populations.
 - *modern and old varieties and wild species;*
 - *medicinal plants, etc.*

Agro-biotechnology for sustainable agriculture



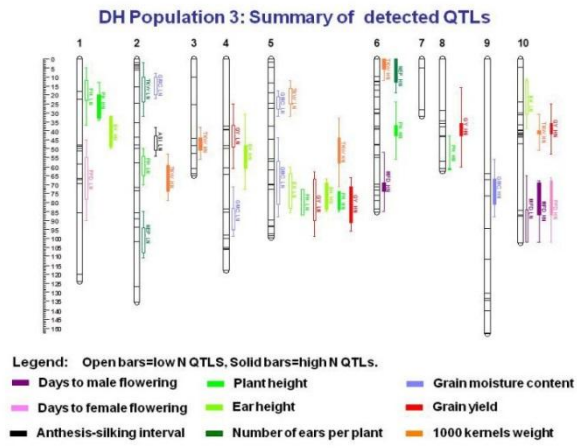
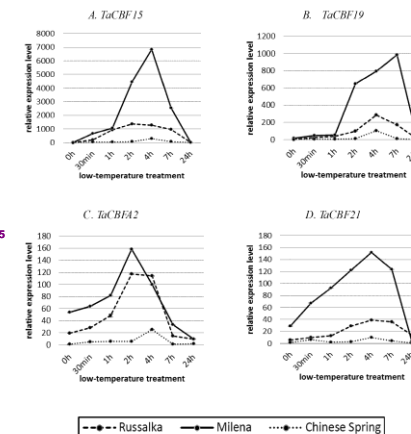
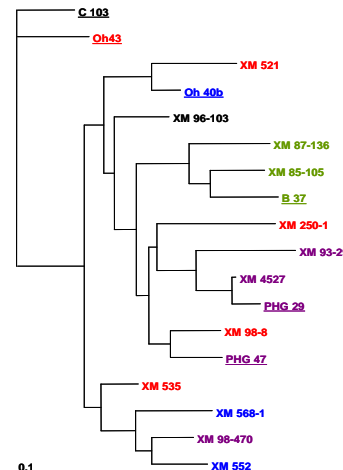
Fundamental and applied research targeting various bio-economy areas related to characterization and utilization of national bio-resources (cereals, legumes, vegetables, oil-bearing crops, trees, medicinal plants, etc.; livestock's, bees, marine organisms, etc)

Omic's research for identification of cultivars, hybrids, lines of economically important crops with better performance under abiotic and biotic stress and food quality

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280      *      300      *      320      *      340      *      360
Granulin : -----
L5-5 Cathe : -----
L5-7 Cathe : -----
L7-5 Cathe : -----
L1-6 Catep : -----
L2-7 Cathe : -----
L3-7 Cathe : -----
L4-3 Cathe : -----
L6-7 Cathe : -----
L7-1 Cathe : -----
L7-7 Cathe : -----
L8-3 Cathe : -----
SL2.50ch02 : -----
Solyco2g07 : SLDPQLYAGGIYDGECCSNFDDLSHAVLIVGYGSEGGVDPIIKNK
              qkswqmegyayikrnt lpyigicqinslasypmke ss pps

420      *      440      *      460      *      480
Granulin : CCENSRLCCQDFPPYCDVLQGLC : 54
L5-5 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 114
L5-7 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 114
L7-5 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 114
L1-6 Catep : CCENSRLCCQDFPPYCDVLQGLC : 107
L2-7 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 107
L3-7 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 107
L4-3 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 107
L6-7 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 107
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L8-3 Cathe : CCENSRLCCQDFPPYCDVLQGLC : 107
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Solyco2g07 : CCENSRLCCQDFPPYCDVLQGLC : 480
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              CCENSRLCCQDFPPYCDVLQGLC
  
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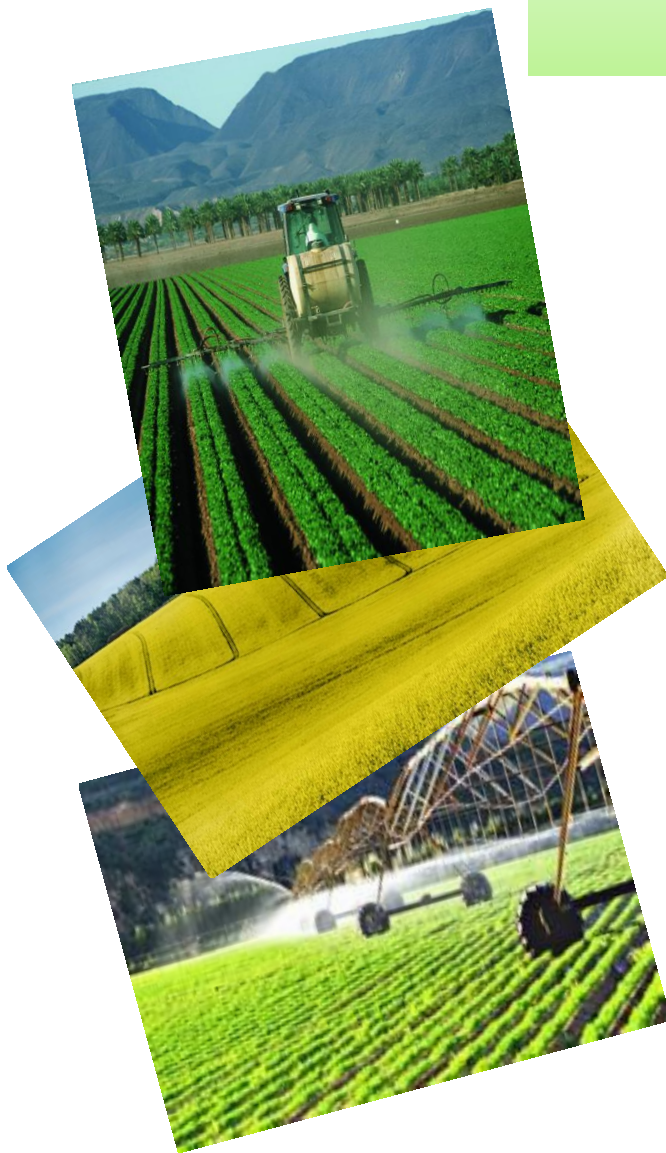
Main research priorities

Improvement of existing technologies and development of innovations for sustainable crop production and reduction of the negative impact of climate change under condition of conventional and organic farming.



SUSTAINABLE AND EFFECTIVE MANAGEMENT OF RESOURCES (ecosystems, soils, waters, biomass, genetic resources) UNDER CLIMATE CHANGES, MITIGATING OF THE IMPACTS OF CLIMATE CHANGE

- Assessment of soil resources, soil health and soil degradation. Development of technologies and solutions to reduce the negative impact of climate change on the pedosphere. Soil evaluation, management, monitoring and restoration.
- Development of water-saving irrigation technologies.
- Development and integration of new technologies to reduce the environmental footprint of agriculture.
- Development and adaptation of innovative plant protection practices for sustainable and competitive agriculture. Phytosanitary monitoring of diseases and pests on cultivated plants.



GENETIC AND ANIMAL BREEDING STUDIES, IMPROVEMENT OF FEEDING, ANIMAL WELFARE AND MITIGATION OF HARMFUL ECOLOGICAL EFFECTS. SUSTAINABLE FISHERIES AND AQUACULTURE DEVELOPMENT



- Preservation, maintenance and enrichment of the animal gene pool. Development of breeding programs for long-term conservation of biodiversity of native breeds and aquaculture. Assessment of adaptive potential (cattle, sheep and goats, buffaloes, pigs and poultry, bees, silkworm).
- Innovations in animal nutrition to improve the quality of meat, milk and their products and to reduce the gas emissions.
- Development of effective technologies for treatment and control of animal diseases.
- Development of technologies for cryopreservation of sperm material (cattle, sheep and goats).



Fisheries and aquaculture – preservation of biodiversity, selection and improvement of freshwater and marine species



Maintenance and development of gene bank of the main warm-water fish species of economic significance for the aquaculture

Development and improvement of systems and methods for reproduction and rearing of traditional and new hydrobionts

Production, prevention and treatment of fish diseases in aquaculture; assessment of the meat quality of hydrobionts

Applied research and services, identifying the fish stocks in the Black Sea

Monitoring of the dynamics, structure and food supply of industrial marine fish species



Food technology



Development of technologies for production of bio-products for the medicinal and the veterinary-medicinal practice; lyophilized and specific foods and functional bio-products for healthy, prophylactic, protective nutrition and nutrition in extraordinary conditions (space foods)

Development of food products - functional and traditional foods for different consumer groups

Development of technologies for processing of plant and animal products

Innovations in food packaging, labeling



We offer training of PhD students and young scientists

- Our institutes have 52 accreditations to train PhD students in 28 doctoral programs in 4 scientific areas:
 - *Social sciences;*
 - *Natural sciences;*
 - *Technical sciences;*
 - *Agricultural sciences*



We support policymaking

- Expert and advisory activities related to drafting of regulations, strategies, programs, laws]
- Our scientists participate in numerous national, European and international organizations and advisory councils on science and agriculture.



We carry out a control and certification activities

- Categorization and classification of lands
- Maintaining soil databases and registries of land degradation
- Assessment of pollution of Soil and Water with heavy metals and radionuclides
- Identification of plant pathogens by molecular markers
- Identification and Passporting of varieties with molecular markers



We carry control and certification activity

- Control of quality and the harmfulness of tobacco products - ITTI – Plovdiv
- Authorized state regulator of tobacco products - laboratory accredited to ISO 17025, part of TobLabNet
- Accredited food testing laboratory Plovdiv
- Physicochemical and microbiological indicators - Analytical methods for the determination of toxic metals
Accelerated test methods for assessment of expiry date of the main Bulgarian food





Ratio between the budget subsidy and the attracted funds in 2023 in the AA

Funds raised in 2023:

- Sale of production and intellectual property;
- Revenues from competitive projects and programs;

25.5 %

74.5 %

Budget subsidy for 2023:

47 949 900 (BGN)

- Covers the salaries of 472 scientists
- Scientific and technical personnel in a ratio of 1:0.5 to 2.2 %

Ensures the maintenance of the institutes and projects of the AA:

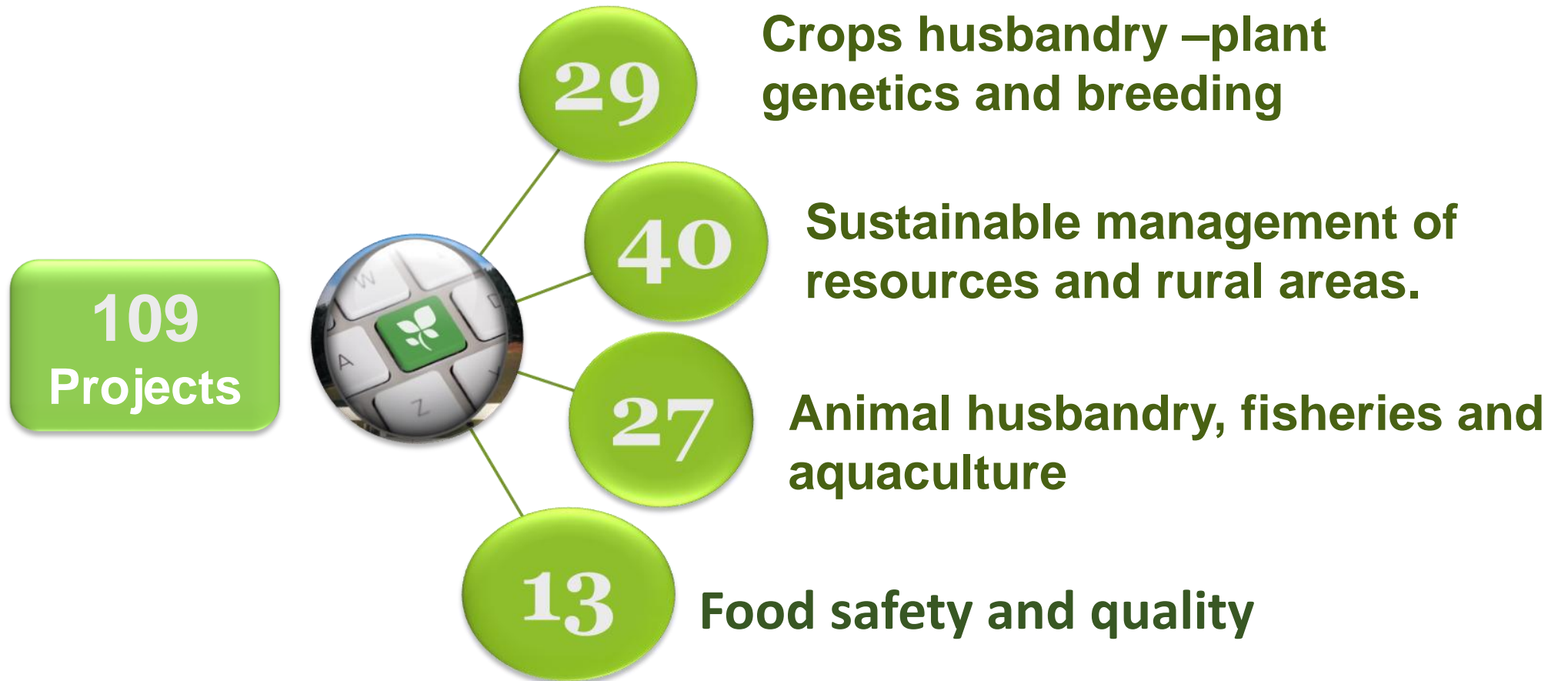
- Salaries of the technical staff and administrative staff of the institutes;
- Infrastructure maintenance;
- Material costs for the scientific research projects of the AA



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Projects funded from the budget subsidy



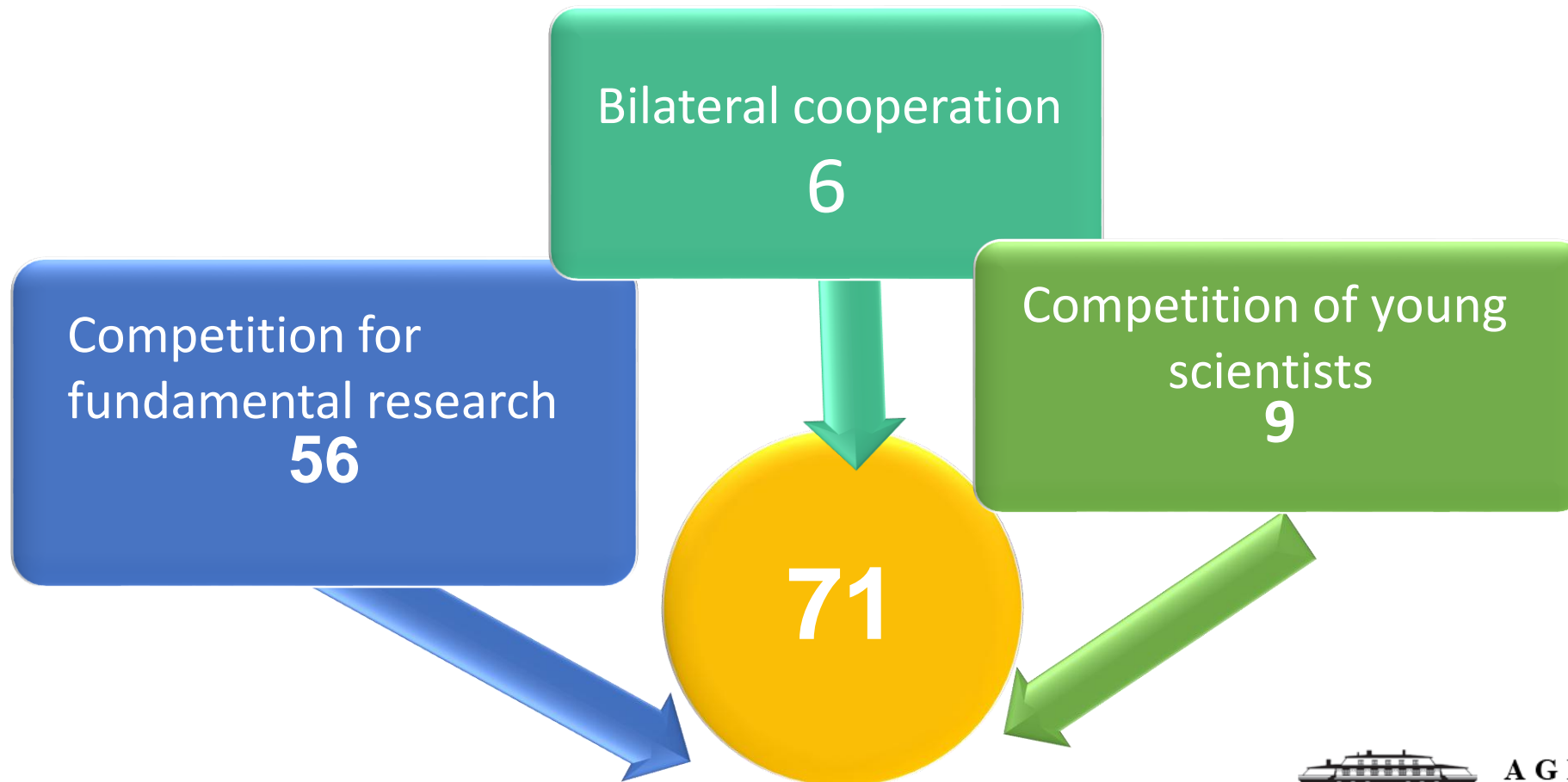
Projects funded by international competition programs





Competitive programs

The Bulgarian National Science Fund (BNSF)

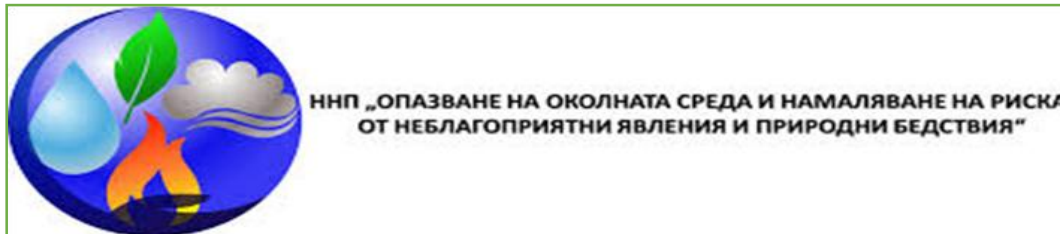


National Scientific Programs

“Healthy Foods for Strong Bio-economy and quality of life” - 2018 – 2023
– 13 institutes of AA



“Environmental protection and reduction of adverse events and natural disasters’ risks “– 2018-2023 – 7 Institutes of AA



National Research Programs

Intelligent crop production



248 696 BGN

Intelligent animal husbandry

24 000 BGN

Young scientists and postdoctoral fellows

112 340 BGN

Stimulating publication activity in prestigious international scientific journals and open access to scientific information

150 000 BGN

Projects funded by the Rural Development Program 2017 - 2022



ПРОГРАМА ЗА
РАЗВИТИЕ НА
СЕЛСКИТЕ РАЙОНИ

Procedure No.
BG06RDNP001-

16.001 under sub-measure 16.1

"Support for the formation and functioning of operational groups within the EPI" from measure 16 "Cooperation"

12 projects

BG06RDNP001-1.004

Procedure by selecting Project proposals under sub-measure 1.2.

"Demonstration activities and awareness actions" from measure 1 "Knowledge transfer and awareness actions"

10 projects

Procedure under sub-measure 2.1.1

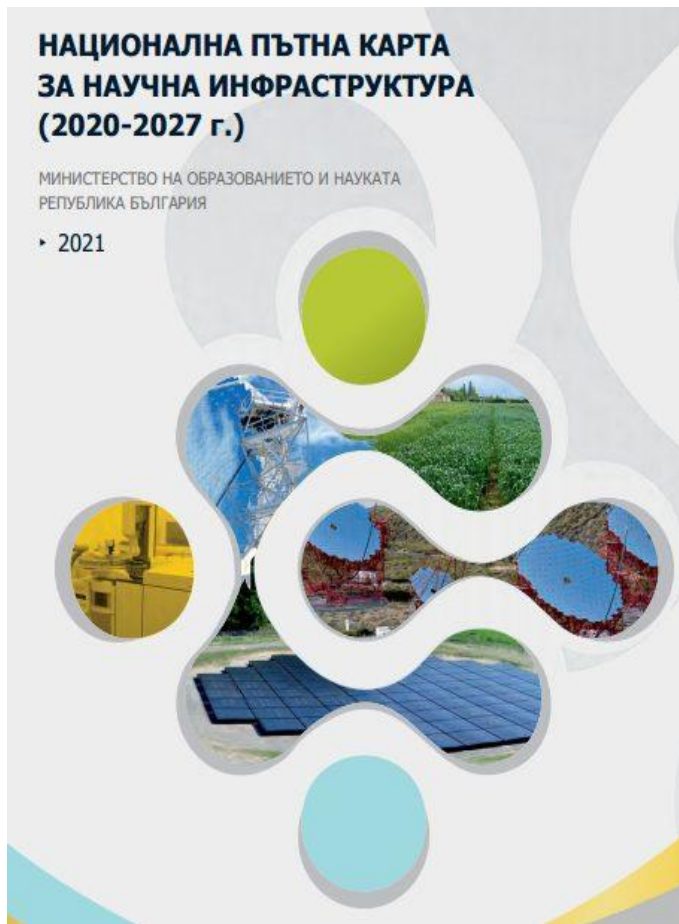
Procedure under sub-measure 2.1.1


"Consultancy services for agricultural and forestry farmers" of measure 2


"Consultancy services, farm management services and farm replacement services"

1 project

National Roadmap for Research infrastructures



National Infrastructure for Research and Innovation in
Agriculture - RINA 

Analyses and Experimentation in Ecosystems 
Pan-European Research Infrastructures (ESFRI)

Center of Competence "Agrifood Systems and Bioeconomy"

Infrastructure for sustainable development in the field of
marine research and participation in European
infrastructure (EURO-ARGO) - MASRI

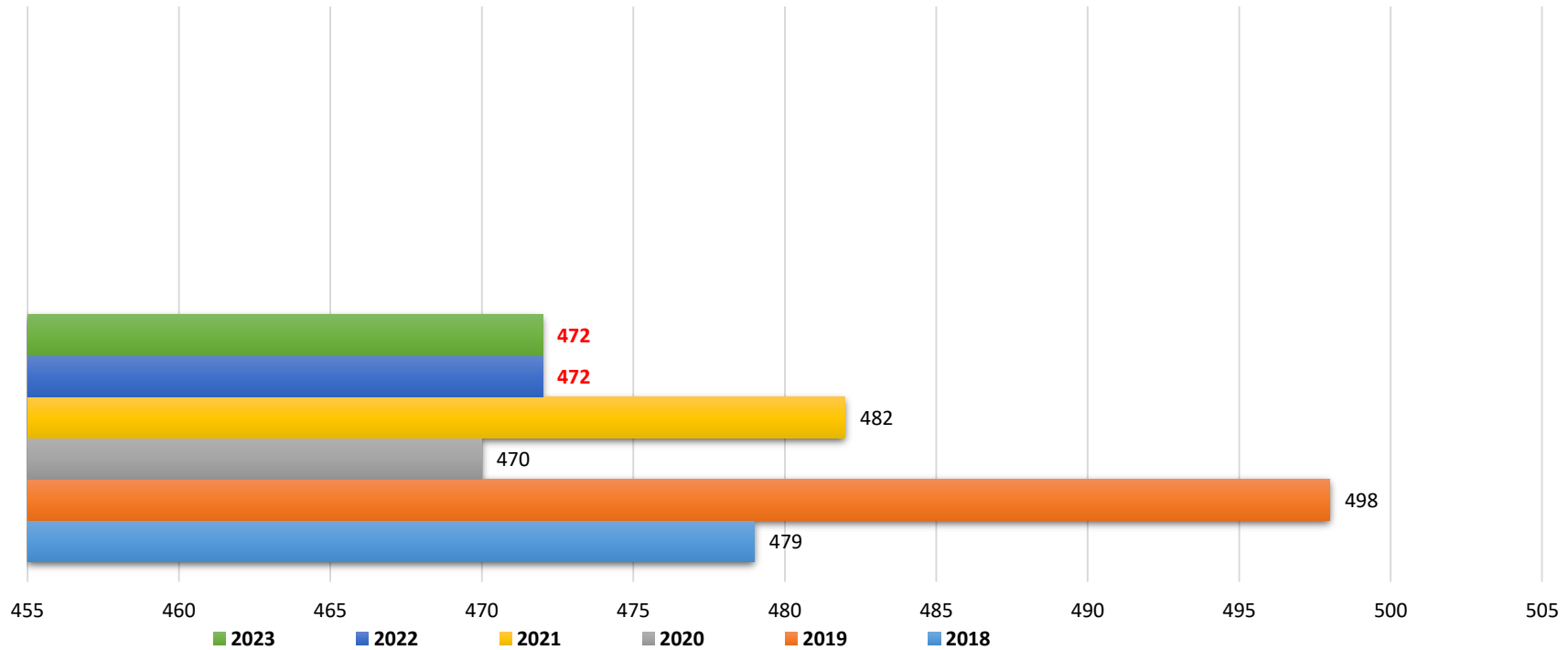
Center of Plant Systems Biology and Biotechnology
(CPSBB) 

**Center of Competence "Sustainable utilization of bio-
resources and waste from medicinal and aromatic plants
for innovative bioactive products"**



Agricultural academy

Academic staff of the Agricultural academy during 2018 - 2023 (total No of scientists per year)



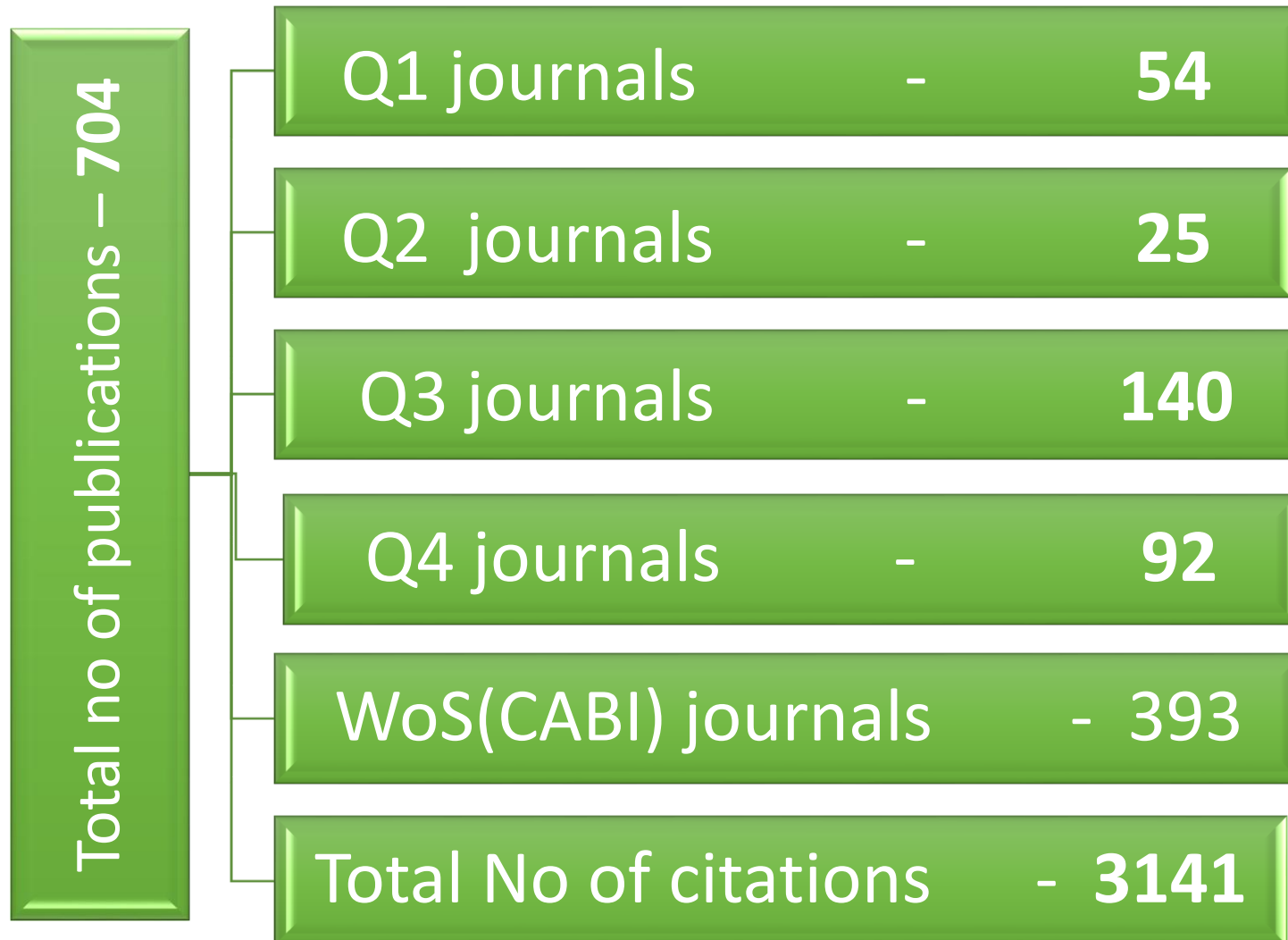
Top Bulgarian institutions according to publication activity, 2010-2019

Institution Number of Publications Average Citations per Publication H-Index

Source: Web of Science

Institution	Number of Publications	Citations per Publication	H-Index
Bulgarian Academy of Sciences	17,750	9.5	95
University of Sofia	7,206	11.6	111
Medical University Sofia	4,735	11.7	82
Technical University Sofia	2,421	2.1	27
University of Chemical Technology	2,043	6.9	43
Plovdiv University	1,664	3.5	26
Agricultural Academy	953	4.1	26
Medical University Plovdiv	923	6.5	31

Publications and citations of the academic staff of the Agricultural academy (AA) in indexed in WoS/Scopus journals in 2023



Rank of Agricultural academy (AA) based on the scientific activity among all Higher education schools (HES) and scientific organizations (SO) in Bulgaria assessed by the Ministry of education and science (MES) in Bulgaria

As a result of the analysis of MES, the Agricultural Academy (AA) ranks first in the following categories:

1. **Comprehensive scientific activity: *Group I intensive scientific activity with a score of over 500 points.*** 14 HES and SO were assessed in this group, with the AA ranking **sixth**, after the Bulgarian Academy of Sciences, Sofia University, the Medical Universities of Sofia and Plovdiv, and the Technical University of Sofia.
2. **Scientific results and their scientific impact (number and quality of publications and citations) - *Group I intensive scientific activity with a score of over 500 points*** among 16 HES and SO assessed in this group, with the AA ranking seventh with over 1000 points;
3. **Social and economic impact - *Group I with a score of over 500 points***, with the AA ranking fourth out of 10 HES and SO in the group with over 1000 points;
4. **Innovation products – *The AA ranks first in implementing policies for the protection of intellectual property and the availability of scientific results of sufficient quality for their protection among 16 HES and SO with at least one national patent application.***

In 2023, the AA overtakes the Bulgarian Academy of Sciences in the number of patent activity points.

Scientific journals published by the Agricultural Academy

<http://www.agrojournal.org/>



Web of Science
JIF for 2023 - 0.5

Scopus
SJR for 2023 - 0.2

<http://cropscience-bg.org>



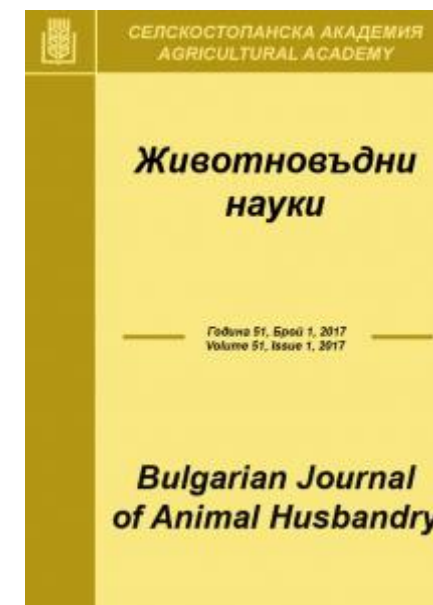
<http://soilscience-bg.org>



<http://journal.jaem.info>



<http://animalscience-bg.org>





Intellectual Property of Agricultural academy

Over 85 % of all certificates for new varieties approved by the Patent Office of Bulgaria are the property of Agricultural academy. In addition, over 160 inventions and useful models have been created.

Valid Certificates for the Protection of Varieties and Breeds
293 in 2023

Crops - 284

Animals – 9

List A - cereals, fodder,
oilseed, technical
203

List B - vegetable,
decorative, medicinal
and aromatic – 81

Silk butterfly – 9 бр.

New varieties approved in 2023 – 24

In 2023, 6 applications for new plant varieties were published in the official bulletin of the Patent Office of Bulgaria.

European Research Alliance “Towards a Chemical Pesticide-free Agriculture”



COST CA21134 - Towards zero Pesticide AGRiculture: European Network for sustainability (TOP-AGRI-Network)

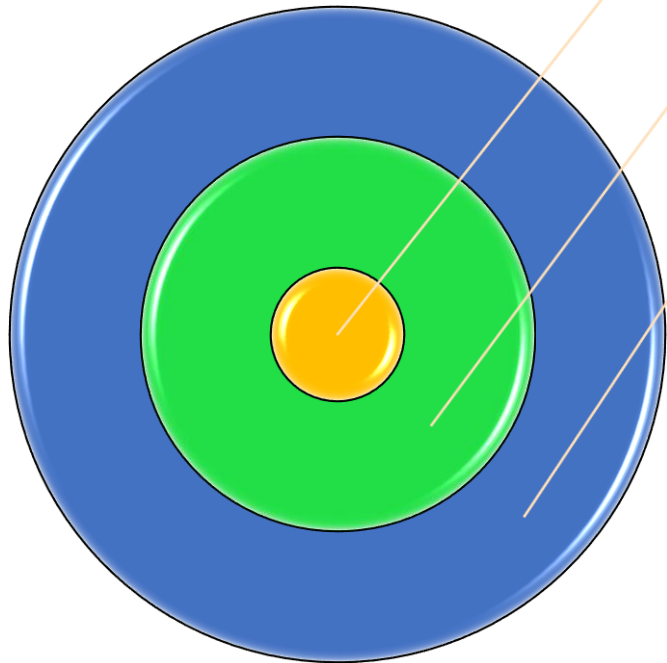
Analyses and Experimentation in Ecosystems
Pan-European Research Infrastructures (ESFRI)

National Infrastructure for Research and
Innovation in Agriculture

The Horizon Europe project gathers more than 70 partners, and will be granted of 15M€ for a duration of 5 years,



What we want to achieve ?



- Increasing research and innovation capacity in key areas for agriculture and bio-economy and protection of natural resources.
- Deepening the interdisciplinary approach and better integration in the national and European and global scientific space. Attracting additional funds through national and international programs.
- Strengthening links between science and business and developing joint innovations. Accelerating commercialization of the created innovative products and increasing the added value of Bulgarian agriculture.
- Open science in collaboration with society - involving citizens, students, farmers in joint experiments to solve social and environmental challenges.



Agricultural academy

Thank you for your attention!

<https://agriacad.bg/>



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