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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 10.2 of the Provisional Agenda

Nineteenth Regular Session

Rome, 17–21 July 2023

REVIEW OF IMPLEMENTATION OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

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I. INTRODUCTION

1. The Commission on Genetic Resources for Food and Agriculture (Commission), at its Eighteenth Regular Session, called upon countries to continue implementing the Global Plan of Action for Animal Genetic Resources[1] (Global Plan of Action) and requested FAO to provide complementary technical and policy support.[2]

2. The Commission requested FAO, and invited countries, to continue raising awareness on the importance of animal genetic resources for food and agriculture (AnGR) and the roles of livestock keepers and of livestock species and breeds and their production systems in the provision of ecosystem services. Moreover, it requested FAO, in partnership with relevant stakeholders and donors, to continue supporting countries, especially developing countries and countries with economies in transition, in the implementation of the Global Plan of Action and, considering specific regional priorities and needs, in the development and implementation of national and regional strategies and studies.[3]

3. This document summarizes the activities FAO has taken since the Commission's Eighteenth Regular Session in support of the implementation of the Global Plan of Action. The activities are grouped according to their relevance to the four strategic priority areas (SPAs) of the Global Plan of Action. In addition, the document reviews FAO's collaboration with other stakeholders and reports on the funding situation. A more detailed overview of FAO projects, meetings, capacity-building events and publications supporting the implementation of the Global Plan of Action is provided in the document *Summary progress report on the implementation of the Global Plan of Action for Animal Genetic Resources*.[4]

II. FAO SUPPORT TO THE IMPLEMENTATION OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

4. Since the last Session of the Commission, FAO has continued to assist countries in the implementation of all the SPAs of the Global Plan of Action by providing institutional and technical support, facilitating research, developing collaborative partnerships and building capacity. The COVID-19 pandemic restricted travel throughout most of the intersessional period, so emphasis remained on normative activities until early 2022.

A. Strategic Priority Area 1. Characterization, inventory and monitoring of trends and risks

Domestic Animal Diversity Information System development

5. As requested by the Commission at its Eighteenth Regular Session,[5] FAO maintained and further developed the Domestic Animal Diversity Information System (DAD-IS) and increased its user-friendliness. Activities included: (i) development of tools in DAD-IS for visualizing data on the diversity of honey-making bees managed for food and agriculture and broadening the scope of the respective data-entry tool to allow information on stingless bees to be entered;[6] (ii) improvement of data-entry procedures, and development of visualization tools related to ecosystem services and publicly available information on breeders, producers and breeding organizations; (iii) automatic language translation of DAD-IS content; (iv) improved interoperability with other databases; and (v) improved options for exporting metadata. Details are given in the document *Detailed report on the development of the Domestic Animal Diversity Information System.*[7]

[1] FAO. 2007. *Global Plan of Action for Animal Genetic Resources and the Interlaken Declaration*. FAO Commission on Genetic resources for Food and Agriculture. Rome. https://www.fao.org/3/a1404e/a1404e.pdf
[2] CGRFA-18/21/Report, paragraph 70.
[3] CGRFA-18/21/Report, paragraph 72.
[4] CGRFA-19/23/10.2/Inf.1.
[5] CGRFA-18/21/Report, paragraph 75.
[6] CGRFA-16/17/Report Rev.1, paragraph 46.
[7] CGRFA-19/23/10.2/Inf.3.

6. Technical support included the following: a series of virtual training workshops held in July, September and November 2021, and November 2022; a global workshop for National Coordinators for the Management of Animal Genetic Resources (NCs-AnGR) held in conjunction with the Twelfth Session of the Intergovernmental Technical Working Group on Animal Genetic Resources (Working Group); and translation of training materials into UN languages. Specifically, the videos *How to use DAD-IS* and *Trends in risk status* were made available in French[8] and Spanish.[9] The publications *User manual* and *Data entry: a quick guide for National Coordinators* were made available in Russian.[10] The document *Collection and estimation of population size data for risk classification in DAD-IS - a sampling methodology* was made available in English,[11] Chinese,[12] French[13] and Spanish.[14]

7. FAO continued to assist countries in accessing data, estimating population sizes and entering data into DAD-IS. During the reporting period, seven countries[15] received direct support of this kind. Further, FAO collaborated with Apimondia, the International Federation of Beekeepers' Associations,[16] to provide direct support to five countries[17] with the collection of data related to bee diversity and their entry into DAD-IS.

8. FAO updated and simplified the data-entry module of DAD-IS, giving NCs-AnGR the option of indicating breeds' uses and the ecosystem services to which they contribute. These options were made operational in June 2022. By September 2022, 41 countries had updated their data, thus filling gaps in the information recorded in DAD-IS.

Monitoring resource indicators of the Global Plan of Action for Animal Genetic Resources

9. The document *Status and trends of animal genetic resources – 2022*[18] reconfirms that breed-related information remains far from complete. This is the case despite the fact that the Commission, at its Sixteenth,[19] Seventeenth[20] and Eighteenth[21] Regular Sessions, stressed the need for countries to regularly update their national data in DAD-IS.

10. As of September 2022, 25 countries had reported on 53 managed bee species or subspecies. Among these 25 countries, 14 provided estimates on the number of colonies for a total of 26 species and subspecies, thus providing the basis for monitoring their genetic diversity. Despite these activities, the current amount and geographical coverage of data are not yet sufficient to inform the development of regional or international policies and strategies to sustain the genetic diversity of bees managed for food and agriculture.

11. After consulting with internal and external experts, FAO prepared a document proposing the broadening of Sustainable Development Goal (SDG) Indicator 2.5.1b to include all breeds recorded in DAD-IS. This document was formally approved by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDG).[22] DAD-IS has been amended accordingly to allow reporting on SDG Indicator 2.5.1b for all breeds recorded in DAD-IS (available online as of December 2022). The

[8] https://360.articulate.com/review/content/4489a6f3-8e14-4331-967b-14d3b5c97885/review and https://360.articulate.com/review/content/ff5b9a4e-8815-4d8a-bf9a-c9062779e42f/review
[9] https://360.articulate.com/review/content/5122dc89-525d-46aa-81c2-969a7072da6c/review and https://360.articulate.com/review/content/7b55836e-9bc3-47a5-bcc0-9586cd5ee32a/review
[10] https://www.fao.org/3/cb0697ru/cb0697ru.pdf and https://www.fao.org/3/cb0698ru/cb0698ru.pdf
[11] https://www.fao.org/3/cc3711en/cc3711en.pdf
[12] https://www.fao.org/3/cc3711fr/cc3711fr.pdf
[13] https://www.fao.org/3/cc3711es/cc3711es.pdf
[14] https://www.fao.org/3/cc3711zh/cc3711zh.pdf
[15] Algeria, Argentina, Indonesia, Libya, Mauritania, Morocco and Tunisia.
[16] https://www.apimondia.org
[17] Botswana, Lesotho, Philippines, Thailand and Viet Nam.
[18] CGRFA-19/23/10.2/Inf.2.
[19] CGRFA-16/17/Report/Rev. 1, paragraph 46.
[20] CGRFA-17/19/Report, paragraph 89.
[21] CGRFA-18/21/Report, paragraph 78.
[22] https://unstats.un.org/sdgs/iaeg-sdgs/

Working Group, at its Twelfth Session, encouraged FAO to explore the extension of the same approach to SDG Indicator 2.5.2.[23]

12. As requested by the Commission, FAO, in 2022 and in cooperation with the University of Natural Resources and Life Sciences, Vienna, Austria (BOKU), convened a group of experts from multiple global regions to consider a feasibility study on the availability of, access to, and optimal use of genomic, pedigree and/or breed demographic data. The results of the expert meeting are provided in the document *Methods for estimation of within-population genetic variation*.[24] The expert group proposed the use of the parameter "effective population size" as an indicator for within-population genetic variation. The Working Group recommended that FAO continue to study, develop and refine genomic, pedigree and/or demographic indicators of within-population genetic diversity, to explore the potential impact on risk classification of combining such indicators with current census data, and to propose related data fields for DAD-IS for consideration by the Working Group at its next session.

13. As requested by the Commission, the Working Group, at its Twelfth Session, discussed the possibility of using SDG Indicator 2.4.1 as another tool for assessing the implementation of the Global Plan of Action. However, the Working Group noted that countries face serious challenges related to data collection for SDG Indicator 2.4.1. Currently, no country data have been published for this Indicator. A first, limited set of country data is expected to be published in the first half of 2023. The IAEG-SDG agreed in March 2022 to include the definition of "locally adapted breed" in the metadata description of SDG Indicator 2.4.1 to help ensure consistency of terms.[25] Discussions are ongoing on how breed information can be collected using farm surveys in a feasible manner, taking into account the expertise needed to identify a breed in the field. The decision to use the definition of "locally adapted breed" for reporting on SDG Indicator 2.4.1 further underlines the need for countries to classify their national breed populations in terms of adaptedness and to enter this information into DAD-IS.

14. The risk of extinction increases exponentially as population size decreases. In response to the Commission's request,[26] the Working Group considered the rationale behind the population size thresholds used to identify breeds considered to be at risk of extinction. It noted that the rationale behind population size thresholds used to identify breeds considered to be at risk of extinction has its basis in expert knowledge, rather than experimental evidence and that expert-driven methods are by far the most commonly used approach for setting thresholds for conservation management.

Other activities in characterization, inventory and monitoring

15. As requested by the Commission at its Eighteenth Regular Session,[27] the document *Genomic characterization of animal genetic resources – Practical guide* has been published online as part of the FAO Animal Production and Health Guidelines series.[28] For environmental and financial reasons, hard copies of the document will not be produced. The Commission also requested FAO to organize workshops to raise awareness and support regional and subregional networks.[29] In December 2022, FAO organized a webinar that provided an overview of the genomic characterization guide. Further webinars on specific topics are planned for 2023.

16. FAO, including the Joint FAO/International Atomic Energy Agency (IAEA) Centre of Nuclear Techniques in Food and Agriculture (CJN) in Vienna, continued to work through its technical cooperation (TC) programmes and with various partners to support countries in the characterization, inventory and monitoring of AnGR, the standardization of methods to undertake these tasks, and the

[23] CGRFA-19/23/10.1, paragraph 18.
[24] CGRFA-19/23/10.2/Inf.4.
[25] https://unstats.un.org/sdgs/metadata/files/Metadata-02-04-01.pdf
[26] CGRFA-18/21/Report, paragraph 77.
[27] CGRFA-18/21/Report, paragraph 74.
[28] Ajmone-Marsan, P., Boettcher, P.J., Colli, L., Ginja, C, Kantanen J. & Lenstra, J.A., eds. 2023. *Genomic characterization of animal genetic resources – Practical guide*. FAO Animal Production and Health Guidelines No. 32. Rome. https://doi.org/10.4060/cc3079en
[29] CGRFA-18/21/Report, paragraph 74.

dissemination of results and related information. During the 2020–2021 biennium, FAO and IAEA technically and/or financially supported projects in seven countries[30] that included activities related to characterization, inventory and monitoring of AnGR. More details about these projects can be found in the document *Summary progress report on the implementation of the Global Plan of Action for Animal Genetic Resources.*[31]

B. Strategic Priority Area 2. Sustainable use and development

17. FAO continued to provide technical assistance on the sustainable use and development of AnGR, both directly and through cooperation with other organizations. During the 2020–2021 biennium, 49 countries received support through 41 TC and extra-budgetary projects. These included projects administered by FAO (22 projects, 24 countries)[32] and by CJN (21 projects, 28 countries).[33] The projects address various issues of priority to the respective countries, including agroecological production systems, "family" poultry production, beekeeping, livestock development, value-chain enhancement, genetic improvement, use of artificial insemination and other reproductive technologies, and animal identification and traceability.

18. FAO continued its work in support of pastoralists and other small-scale livestock keepers, who maintain a large proportion of the world's AnGR. Activities mainly centred on the Sahel region[34] and included support for the establishment of national, regional and local transhumance committees tasked with informing policy development in the respective countries. FAO also continued to operate the Pastoralist Knowledge Hub.[35] The actions undertaken were supported by extra-budgetary funds from the Government of Spain as well as through FAO Regular Programme funds.

19. FAO also undertook various activities to improve the sustainable use and development of the genetic resources of bees that are managed for food and agriculture. In collaboration with the Istituto Zooprofilattico Sperimentale del Lazio e della Toscana "M. Aleandri", Apimondia and the Chinese Academy of Agricultural Sciences, FAO finalized guidelines on *Good beekeeping practices for sustainable apiculture*[36] and the *Visual manual on good beekeeping practices for small-scale beekeepers in Africa*,[37] which include sections on breeding and genetics.

C. Strategic Priority Area 3. Conservation

20. As requested by the Commission at its Eighteenth Regular Session,[38] the document *Innovations in cryoconservation of animal genetic resources – Practical guide* has been published in electronic format.[39] The Commission further requested FAO to organize workshops to raise awareness about the practical guide and its content.[40] The Commission also called upon countries to place particular emphasis on the conservation of AnGR through either *in vivo* or *in vitro* methods, as appropriate, and requested FAO to provide complementary technical and policy support.[41] In response to these requests, FAO collaborated with the Nordic Genetic Resources Center (NordGen) and co-organized a series of 12 webinars in 2022 and early 2023 to disseminate the information contained in

[30] Bahrain, Burkina Faso, Cameroon, Iran (Islamic Republic of), Mongolia, Papua New Guinea and Paraguay.
[31] CGRFA-19/23/10.2/Inf.1, Tables 4 and 5.
[32] Ibid, Table 4.
[33] Ibid, Table 4.
[34] Mali, Mauritania, Niger and Senegal.
[35] https://www.fao.org/pastoralist-knowledge-hub/en/
[36] FAO, IZSLT, Apimondia & CAAS. 2021. *Good beekeeping practices for sustainable apiculture*. FAO Animal Production and Health Guidelines No. 25. Rome. https://doi.org/10.4060/cb5353en
[37] FAO, Apimondia, IZSLT. 2021. *Visual manual on good beekeeping practices for small-scale beekeepers in Africa*. TECA – Technologies and practices for small agricultural producers, 2. Rome. https://doi.org/10.4060/cb4576en
[38] CGRFA-18/21/Report, paragraph 74.
[39] Boes, J., Boettcher, P. & Honkatukia, M., eds. 2023. *Innovations in cryoconservation of animal genetic resources – Practical guide*. FAO Animal Production and Health Guidelines No. 33. Rome. https://doi.org/10.4060/cc3078en
[40] CGRFA-18/21/Report, paragraph 74.
[41] CGRFA-18/21/Report, paragraph 70.

the practical guide and build capacity for AnGR gene banking. Recordings of the webinars and PDF files of all presentations have been made available on the FAO[42] and NordGen[43] websites.

D. Strategic Priority Area 4. Policies, institutions and capacity building

21. FAO continued to offer support upon request to countries and regional bodies in the development of policies related to the management of AnGR, including National Strategies and Action Plans, and national laws and legislation. FAO participated in the review process for the publication *Genetic Resources Strategy for Europe*,[44] which was developed by the European Regional Focal Points (ERFPs) for animal, forest and plant genetic resources as part of the European Union-sponsored GenRes Bridge[45] project.

22. Following a request by the Commission, at its Eighteenth Regular Session, to continue to support regional and subregional networks,[46] FAO continued its collaboration with the ERFPs for AnGR and the regional focal point for AnGR in Latin America and the Caribbean. FAO organized or contributed to 12 meetings and workshops for NCs-AnGR during the reporting period.[47]

23. FAO and its partners contributed to the development and/or implementation of three global projects and 47 regional or national projects involving 91 countries.[48] FAO organized, with partners, 20 national, regional and global capacity-building events,[49] most of which were held virtually because of the global pandemic. FAO staff have served on the advisory boards or stakeholder panels of several international collaborative research projects. During the reporting period, FAO staff prepared more than 20 AnGR-related publications, including FAO documents, scientific articles and book chapters.[50] FAO staff also serve on the editorial board of *Genetic Resources*,[51] an open-access scientific journal launched by the GenRes Bridge project.

24. FAO has collaborated with the European Federation of Animal Science (EAAP) and the ERFPs for AnGR in the organization of special sessions related to AnGR at EAAP annual meetings. FAO also participated in an ERFP for AnGR capacity-building session (organized under the GenRes Bridge project) and in ERFP for AnGR ad hoc actions on transboundary breeds and on improving the interoperability of the databases used in management of AnGR. Furthermore, FAO collaborated with the Iberoamerican Network for Conservation of the Biodiversity of Local Domestic Animals (Red CONBIAND)[52] to develop capacity in the management of AnGR in Latin America and the Caribbean.

25. FAO provided support in the organization of the virtual IAEA/FAO International Symposium on Sustainable Animal Production and Health – Current Status and Way Forward[53] in 2021, which included several sessions that addressed the management of AnGR. More than 3 000 people from 169 countries registered for the event, and the number of simultaneous participants exceeded 600 people.

26. FAO continues to maintain the Domestic Animal Diversity Network (DAD-Net) and regional subgroups as informal fora for the discussion of issues relevant to the management of AnGR. As of October 2022, nearly 3 400 people from 156 countries were subscribed to the DAD-Net. FAO continues to increase its social media presence with the aim of raising awareness of the importance of AnGR. Content includes regular quizzes on livestock breeds and facts about AnGR.

27. The first session of the Committee on Agriculture (COAG) Sub-Committee on Livestock (Sub-Committee) was held in March 2022 as a virtual event. The documentation for the session

[42] https://www.fao.org/animal-genetics/events/intergovernmental-technical-working-group-on-angr/webinars/en/
[43] https://www.nordgen.org/en/cryo-conservation-webinars/
[44] http://www.genresbridge.eu/fileadmin/templates/Genres/Uploads/Documents/GRS4E.pdf
[45] http://www.genresbridge.eu
[46] CGRFA-18/21/Report, paragraph 74.
[47] CGRFA-19/23/10.2/Inf.1, Table 2.
[48] Ibid, Tables 4 and 5.
[49] Ibid, Table 3.
[50] Ibid, Table 6.
[51] http://www.genresbridge.eu/resources/genetic-resources-journal/
[52] https://conbiand.site/
[53] https://www.iaea.org/events/aphs2021

included an information document entitled *Progress in the implementation of the Global Plan of Action for Animal Genetic Resources*[54] to inform delegates about the work of FAO and its Members on AnGR.

E. Collaboration

28. FAO continued to strengthen its interactions with scientific and non-governmental organizations, regional focal points and regional networks. As described throughout this document, FAO maintains its recognized technical competence in the management of AnGR through participation in various scientific endeavours, including by undertaking in-house research and contributing to research and development projects, organizing and leading sessions at international scientific conferences and publishing scientific publications.

F. Funding

29. The Commission, at its Twelfth Regular Session, adopted the Funding Strategy for the implementation of the Global Plan of Action for Animal Genetic Resources[55] (Funding Strategy) and requested FAO to implement it.[56] The Funding Strategy covers "all known and potential sources of financial resources" that support the implementation of the Global Plan of Action, including bilateral and multilateral support, domestic support, FAO Regular Programme resources and voluntary contributions to the FAO Trust Account established to support national and regional projects that contribute to the implementation of the Global Plan of Action.

Status of the FAO Trust Account

30. The Commission, at its Eighteenth Regular Session, invited donors to contribute to the implementation of the Global Plan of Action, including by contributing to the Funding Strategy. No funds were received during the intersessional period. No call for proposals was therefore issued.

Contributions from the Regular Programmes of FAO and IAEA

31. During the 2020–2021 biennium, work on AnGR, including the implementation of the Global Plan of Action, contributed to four outcomes of FAO's Medium Term Plan 2018–2021,[57] primarily relating to Strategic Objective 2 – *Make agriculture, forestry and fisheries more productive and sustainable*. For 2020–2021, the portion of FAO's Regular Programme resources allocated for work on AnGR was around USD 1.7 million.

32. For the 2022–2023 biennium, work on AnGR will contribute to all four "Betters" and nine different Programme Priority Areas (PPAs) within the Medium Term Plan 2022–2025,[58] indicating the multifactorial contribution of AnGR to food and agriculture. The greatest contribution by far is to the PPA *Better Environment 3: Biodiversity and ecosystem services for food and agriculture*. Other PPAs receiving substantial contributions are *Better Production 1: Green innovation* and *Better Production 5: Digital agriculture*.

33. During the 2020–2021 biennium, the value of FAO TC projects contributing to this work amounted to approximately USD 1 million. That from the IAEA TC Programme through CJN amounted to approximately USD 2.2 million. CJN also contributed approximately USD 0.25 million through its Coordinated Research Projects.

[54] COAG:LI/2022/INF/8.
[55] CGRFA-12/09/Report, *Appendix C*.
[56] CGRFA-12/09/Report, paragraph 43.
[57] C 2019/3.
[58] FAO. 2021. *The Director-General's Medium Term Plan 2022–25 and Programme of Work and Budget 2022–23*. Rome. https://www.fao.org/3/ne576en/ne576en.pdf

Voluntary contributions to FAO

34. FAO received funds from Austria, Azerbaijan, Bahrain, Mauritania, Saudi Arabia, Spain, Switzerland, Türkiye and the United Arab Emirates (total of approximately USD 4.6 million) to support the implementation of the Global Plan of Action by means of regional and country projects. For some of these projects, countries provided financial support for domestic activities, with FAO providing technical support. In some instances, the financial support involved funds the countries had received from donors, specifically the European Union and the Global Environment Facility. The funds under these programme cooperation agreements helped FAO provide catalytic funds for special activities under all four SPAs.

Resources not under FAO control

35. As a rule, FAO does not have detailed information about the distribution of resources not under its control. However, at its Eighteenth Regular Session, the Commission requested FAO to invite countries to report on projects that contribute to the implementation of the Global Plan of Action, for consideration by the Working Group and the Commission.[59] Therefore, in 2022, FAO invited NCs-AnGR to report on their respective countries' projects related to the Global Plan of Action. Responses were received from 17 countries.[60] Information on 49 country projects that were active during the intersessional period is summarized in the document *Summary progress report on the implementation of the Global Plan of Action for Animal Genetic Resources*.[61] The countries responding represented a wide range of levels of economic development. In general, higher-income countries reported greater expenditure on AnGR projects. Some countries reported having single projects addressing all aspects of AnGR, whereas other countries reported multiple projects each addressing single species and specific activities. Most projects reported were related to SPA2 (33), followed by SPA3 (16), SPA1 (12) and SPA4 (9).

III. GUIDANCE SOUGHT

36. The Commission is invited to review the progress made in the implementation of the Global Plan of Action. It may wish to:

- invite countries to continue implementing the Global Plan of Action with a view to contributing to global food security, sustainable rural development and the achievement of SDGs 2 and 15;
- recommend that FAO continue to support countries, upon their request, in the implementation of the Global Plan of Action, especially developing countries and countries with economies in transition;
- recommend that the Commission and FAO increase fund-raising efforts, and invite donors to contribute to the implementation of the Global Plan of Action, including by providing funds to the FAO Trust Account;
- invite technical agencies and donors to develop and implement national AnGR projects with the wide inclusion of stakeholders and NCs-AnGR;
- recommend that FAO support capacity building, including on topics such as animal identification and recording, genetic improvement, *ex situ* conservation, agroecology, sustainable beekeeping and the development of livestock value chains for smallholders; and
- recommend that FAO continue raising awareness and encourage relevant stakeholders to continue raising awareness of the importance of AnGR and the roles of livestock keepers and of livestock species and breeds and their production systems in the provision of ecosystem services.

[59] CGRFA-18/21/Report, paragraph 72.
[60] Argentina, Brazil, Ethiopia, Finland, Gabon, Italy, Kenya, Philippines, Poland, Qatar, Serbia, Spain, Togo, Tonga, United States of America, Uruguay and Yemen.
[61] CGRFA-19/23/10.2/Inf.1, Table 7.

37. With respect to the monitoring of the diversity of animal genetic resources, the Commission may wish to:

- stress the importance of DAD-IS as the international clearing-house mechanism for AnGR;
- stress the need for countries to regularly update their national data in DAD-IS, especially the data pertaining to breed adaptation classifications and to bees managed for food and agriculture, to ensure that decisions on the implementation of the Global Plan of Action and the achievement of SDG Targets 2.4 and 2.5 are informed by the most up-to-date data and information available;
- recommend that FAO continue to provide technical support to further maintain and develop DAD-IS and to continue to increase its user-friendliness, including tools that facilitate data entry and updating, and storage and visualization of geographic distributions of national breed populations, and to consider the inclusion of data fields, including for digital object identifier (DOI) or PubMed ID records, which would increase the visibility and use of DAD-IS;
- recommend that FAO explore new low-cost approaches to addressing data collection for SDG Indicator 2.4.1 and encourage FAO to explore with the IAEG-SDG the potential for broadening the scope of SDG Indicator 2.5.2 to include transboundary breeds;
- recommend that FAO continue developing and/or refining low-cost and cost-efficient methodologies for estimating the sizes of national breed populations, and providing technical support to countries with the estimation of breed population sizes and other data relevant to monitoring the diversity of livestock breeds and managed bee populations;
- recommend that FAO perform an analysis of the rate of reporting of breed performance data in DAD-IS for consideration by the Working Group at its next session and that countries and FAO continue working on the interoperability of DAD-IS with existing regional data information systems to avoid duplication of efforts; and
- recommend that FAO continue to study, develop and refine genomic, pedigree and/or demographic indicators of within-population genetic diversity, to explore the potential impact on risk classification of combining such indicators with current census population size data, and to propose related data fields for DAD-IS, for consideration by the Working Group at its next session.