

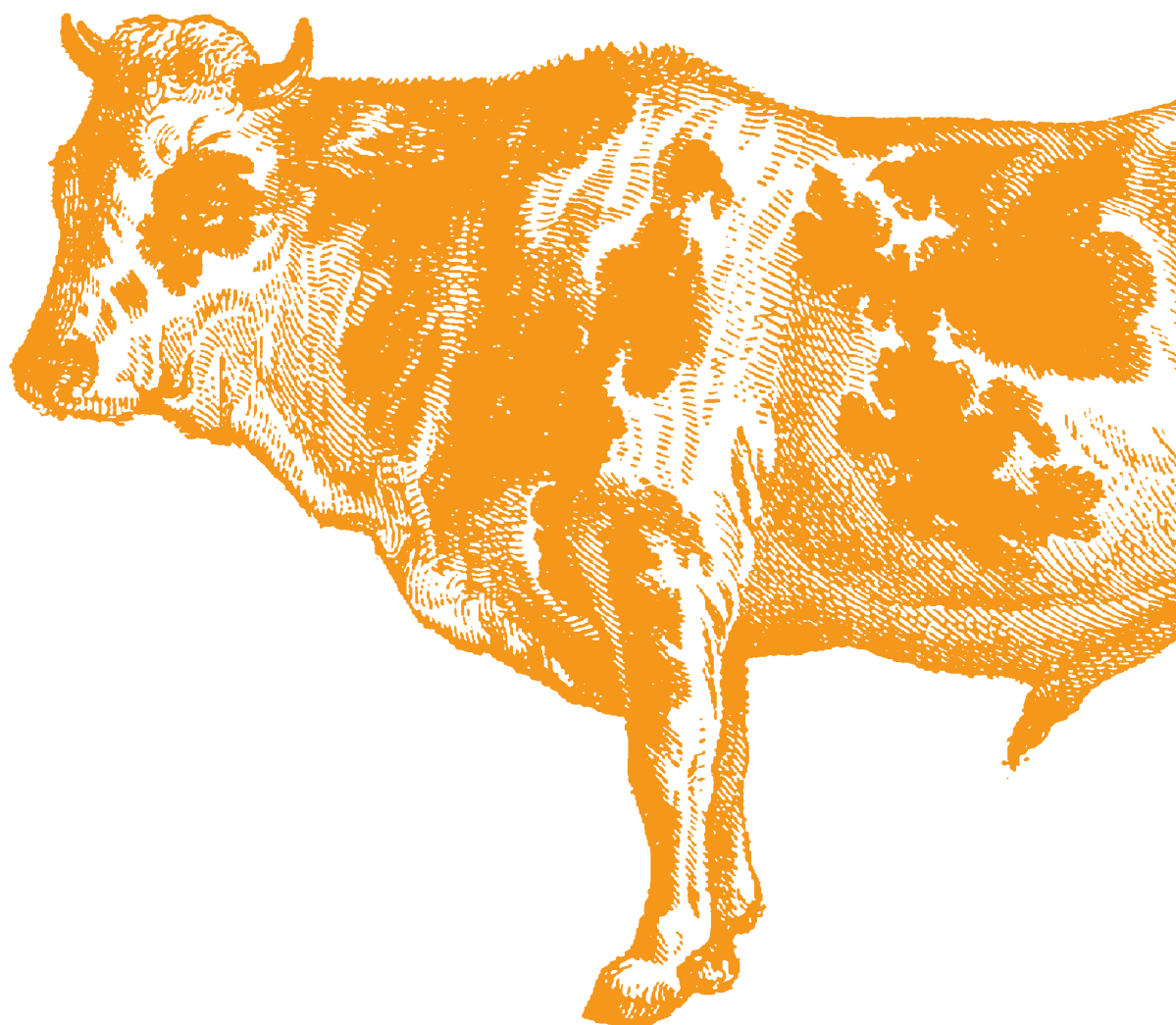


Food and Agriculture
Organization of the
United Nations



ANIMAL HEALTH AND PRODUCTION STRATEGY FOR FAO
REGIONAL OFFICE FOR EUROPE AND CENTRAL ASIA **2020–2025**

A wake-up call for impact



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List of acronyms

| | |
|-------|---|
| AI | Artificial insemination |
| AMR | Antimicrobial resistance |
| AMU | Antimicrobial use |
| ASF | African swine fever |
| EFSA | European Food Safety Authority |
| EUFMD | European Commission for Foot and Mouth Disease |
| FAO | Food and Agriculture Organization of the United Nations |
| FFS | Farmer field school |
| FMD | Foot-and-mouth disease |
| FP | Family poultry farming |
| GDP | Gross domestic product |
| GHG | Greenhouse gases |
| HPAI | Highly pathogenic avian influenza |
| LEAP | Livestock environmental assessment and performance |
| LSD | Lumpy skin disease |
| NAITS | National animal identification and traceability system |
| OIE | World Organisation for Animal Health |
| PPR | Peste des petits ruminants |
| REU | FAO Regional Office for Eastern Europe and Central Asia |
| SDG | Sustainable Development Goals |
| TAD | Transboundary animal disease |
| UN | United Nations |
| WHO | World Health Organization |

Foreword

The present regional strategy for animal health and production in Europe and Central Asia comes to light at a time of global uncertainty, as individuals and countries face the global COVID-19 pandemic. While lessons from this crisis remain yet to be learned, there is immense opportunity for growth and development downstream. In the agriculture and livestock sectors in particular, millions of smallholders, who have been historically disadvantaged or left behind, have suffered drastic consequences of the pandemic, at times overextending themselves irreversibly.

FAO cannot afford to wait for the end of the crisis before responding to its burden. The livelihoods and food security of millions of people who directly depend on livestock, as well as many others, who indirectly benefit from livestock value chains, are at stake. The Organization's development work should start today with a fresh vision of more resilient systems for the next five years and beyond. Farmers across the region, particularly smallholders, have long-faced tremendous challenges. Whether tending small flocks of sheep, small dairy farms, or backyard pig and poultry holdings, these producers

are challenged to not only keep their businesses alive, but also to secure income and bread for their families. These challenges are directly related to livestock diseases, low animal productivity due to obsolete feeding practices, lack of pasture and water, and poor access to local, national and international markets. Furthermore, the overuse of antibiotics in livestock has put livestock owners at the center of the antimicrobial resistance (AMR) global threat. Now they need to be part of the solution.

The present strategy emphasizes FAO's commitment to work with governments, animal health and production professionals, as well as farmers, to ultimately improve the livelihoods and food security of livestock owners and others along the value chain. FAO is fully committed to the UN 2030 Sustainable Development Goals (SDGs) through continuous and dedicated work for the improvement of animal health and productivity, while reducing the threat of AMR using the One Health approach. We wish this strategy to become a clear path for member countries to join forces and work hand-in-hand with FAO to implement and ultimately reach the vision of a world free from hunger and rural poverty. ■■■

Vladimir Rakhmanin
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Executive summary

In order to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs) by 2030, the most important issues that hinder livestock sector development will need to be addressed with a strategic approach. The strategy presented in these pages includes three pillars – animal health, animal production, and antimicrobial resistance (AMR) – along with seven cross-cutting issues, among them gender, environmental sustainability, community farming as a business, and coordination with other international organizations.

In Pillar one (animal health), the strategy first discusses: the main foundations, including disease prioritization using the One Health approach as a critical step to ensure a clear understanding of the diseases that have economic and public health importance for REU countries; stakeholder involvement, including veterinary services, farmers and other players along the value chain; and the enhancement of innovation technology in the region, such as “smart” farming and digital animal-monitoring. The strategy then elaborates the principles of disease outbreak prevention, preparedness, detection response and recovery in relation to disease-specific and -non-specific actions (e.g. biosecurity, compensation, carcass disposal).

In Pillar two (animal production), the strategy describes the primary aspects of REU’s work, particularly feeding and the key factors involved: sustainable management of pasture; main feeding resources; reducing feed waste; improving feed quality such as hay and silage; and the importance of taking advantage of crop residues and agro-industry by-products. With respect to cattle breeding, the strategy outlines the support to dairy production for small and medium holders, artificial insemination, the National Animal Identification and Traceability System, and performance-recording. Given the richness of the region with respect to indigenous livestock breeds, the strategy presents opportunities for their conservation in order to capitalize on their local traits, such as disease resistance, as an added value to increase productivity. This pillar also discusses the importance of developing small ruminant production, family poultry farming, and apiculture as means to increase production efficiency and sustainability, as well as to enhance child nutrition, women’s income-generating potential, and ecosystem services.

In Pillar three (antimicrobial resistance), the strategy ratifies REU’s commitment to the global fight against the threat of AMR. It upholds FAO’s action plan, which focuses on raising awareness, developing capacity for surveillance and monitoring of AMR and antimicrobial use (AMU) in food and agriculture, strengthening governance related to AMR and AMU in food and agriculture, and promoting good practices that reduce the need for AMU.

REU’s commitment to cross-cutting issues is articulated to promote multidisciplinary work among REU technical officers as well as FAO headquarters, and to ensure that REU complies with UN priorities, such as gender equality and women’s empowerment, and environmental sustainability. Issues such as community-driven interventions and farming as a business will help REU to strive for the best results in its work toward the SDGs by 2030. ■■■

Introduction

BACKGROUND

The activities on animal health and production carried out by the Food and Agriculture Organization of the United Nations (FAO) Regional Office for Eastern Europe and Central Asia (REU) aim at improving livelihoods and food security in rural areas by improving animal health and husbandry practices. These activities are not carried out in isolation within the United Nations, FAO and REU. FAO's regional work on animal health and production is aligned with the United Nations Sustainable Development Goals (SDGs), particularly SDG 1 (No poverty), SDG 2 (Zero hunger), SDG 3 (Good health and well-being), SDG 5 (Gender equality), SDG 8 (Decent work and economic growth) and SDG 11 (Sustainable communities). It is also aligned with FAO's strategic framework and REU's regional initiatives. Further, FAO's work in the region is well coordinated and often in collaboration with our main partners, such as the World Organisation for Animal Health (OIE), the World Health Organization (WHO), the European Commission for Foot and Mouth Disease (EUFMD) and the European Food Safety Authority (EFSA).

PURPOSE OF THE STRATEGY

This strategy aims to present the main aspects of REU's work on animal health and production. This does not exclude other issues that will be addressed

as part of REU's work in the region, particularly when opportunities to expand the regional programme arise or specific emergencies take place, as with the COVID-19 pandemic. The strategy's focus areas are structured around three main pillars: Animal Health; Animal Production; and Antimicrobial Resistance (AMR). Each pillar includes several priority areas. Cross-cutting issues that are common to all three pillars are also briefly discussed. The strategy focuses geographically on non-European Union countries of the Former Soviet Union and Former Yugoslavia, in addition to Albania and Turkey. It is important to note that the needs and capacities in terms of animal health and production vary greatly within the region, even between countries. Nevertheless, the strategic approach for the three pillars takes into consideration four main subregions within REU, based on geography and culture, plus Turkey: (i) The Western Balkans, which includes Albania, Bosnia and Herzegovina, Kosovo*, Montenegro, North Macedonia and Serbia; (ii) Eastern Europe, which includes Belarus, Moldova and Ukraine; (iii) the Caucasus region, which includes Armenia, Azerbaijan and Georgia; and (iv) Central Asia, which includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The relevance of the activities discussed in this strategy can vary among the four subregions.

* References to Kosovo in this document shall be understood to be in the context of Security Council resolution 1244 (1999)

STRATEGY MISSION

To improve animal health and production practices mainly of smallholders, using evidence-based, multidisciplinary and coordinated approaches and interventions aiming at empowering both the private and public sectors to take ownership of the envisioned actions.

SITUATIONAL ANALYSIS OF THE REGION

Actions associated with the strategy will vary within the subregions according to their specific needs. Therefore, it is important to first briefly analyse the different capacities of the subregions in terms of animal health, animal production and AMR to better fit the strategy activities into the local context.

Animal health

Animal health status stems directly from the technical and institutional capacity of the veterinary services, both public and private, to prevent, detect and respond to animal disease outbreaks. This capacity varies even within each subregion, as exemplified in Central Asia, where Kyrgyzstan has made remarkable progress in terms of privatization of the veterinary services, establishing a veterinary chamber, whereas Kazakhstan and Tajikistan have not yet encouraged the private sector to develop. This example and those that follow are just a few relevant examples to provide some context, rather than a systematic review of the situation of animal health services in the region. In Azerbaijan, Armenia and Georgia, the veterinary services also suffer from weak private sectors, although positive developments have been noticed recently in Azerbaijan with the presidential decree that calls for the privatization of many of the

public veterinary services functions. In Georgia, the support provided to the private sector by international organizations has shown limited but promising progress. However, the capacity in terms of surveillance, diagnostics and vaccination delivery can be evaluated as moderate. In Azerbaijan, the recently established Food Safety Agency has significantly weakened the Ministry of Agriculture's veterinary services, which were left with tasks that would be better assumed by the private sector. The latter has a very weak presence in the field and hence the proposed transition of these tasks to the private sector is an encouraging sign. The response capacity of Georgia to the 2016 outbreak of peste des petits ruminants (PPR) was well coordinated and executed, leading to the rapid vaccination of the whole small ruminant population in the country. While this capacity needs to be maintained and improved in Georgia, this capacity in Armenia and Azerbaijan is largely unknown. Most Balkan countries' veterinary services have a stronger capacity to respond, particularly in Montenegro, North Macedonia and Serbia. This was clearly shown during the 2016 lumpy skin disease (LSD) epidemic in the region. In contrast, the capacity of veterinary services in Albania and Bosnia and Herzegovina requires closer support.

Animal production

The production of livestock depends on many factors, including feeding, animal health, genetic potential and farming practices. At present, however, neither individual governments nor the private sector in the region provide support to enhance farmers knowledge as how to increase their productivity, including the use of "smart" livestock technologies and practices (e.g. pasture

improvement, manure management, digital animal monitoring). Further, in the absence of a national strategy for the modernization of the livestock sector as well as advisory services, farmers are left without any prospects for improving productivity, increasing access to markets and improving their livelihood.

Feeding has been one of the main bottlenecks in improving livestock productivity across the region. In the case of cattle and small ruminants, the majority of pastures, which serve as the main feeding resource in the region, are owned by local governments, without any centrally organized pasture management. Pasture degradation is particularly severe in the mountainous countries, in the Caucasus, Western Balkans and Central Asia. Even among small and medium farms that do produce hay and silage, there is an evident lack of knowledge on this art, which indeed makes the nutritional value difference. In most countries across the region, farmers do not know when and how to properly cut the hay. Moreover, the storage conditions contribute to further loss. Except for Belarus, good practices of hay- and silage-making and storage can be seen across the region only on large commercial dairy farms and a few large beef farms, as can be seen in Kazakhstan. However, these do not represent the general practice among livestock keepers. In addition, many agro-industrial companies produce by-products that are suitable for livestock-feeding and which could cover the nutritional gap in feeding. Similarly, there is remarkable sub-utilization of agro-industrial (e.g. bran, oil seed cakes) and crop residues (e.g. straw or corn stover) although they are available year-round across the region. There are also particular agriculture industry by-products that are characteristic to

specific countries in the region – e.g. cotton seeds in Azerbaijan, Kyrgyzstan and Uzbekistan; hazelnut hulls in Armenia and Georgia; sugar beet pulp in Ukraine; and sunflower seed cake in Moldova. Use of these resources can reduce the dependency on external or import of feed stuff and hence increase the sector's resilience to shocks. Pig and poultry production across the region face very high feeding costs, which certainly limit producers' capacity to improve efficiency. This is particularly true for smallholders and backyard producers who rely either on homemade feed or low-quality feed purchased on local markets.

Cattle-breeding requires a centralized national strategy. At present in the region, on Belarus and Moldova have a centralized cattle-breeding strategy. Armenia recently developed a cattle improvement plan. However, this plan is focused more on the import of exotic genetic material and breeding animals. In Azerbaijan, FAO, jointly with the Ministry of Agriculture, is implementing a project on the development of a breeding strategy for both sheep and cattle. In Ukraine, the Ministry of Economic Development, Trade and Agriculture developed a framework to support cattle breeders. However, large gaps exist between the legislative framework of breeding organizations and its actual implementation. On-farm cattle-breeding programmes are present mostly on the large farms across the region. In most cases, small and medium farmers do not keep performance and pedigree records. Artificial insemination (AI), which is one of the main pillars of modern cattle-breeding, is a well-established practice in Belarus, mainly executed by private companies. In Ukraine, AI services are available for large farms or collectives, but, considering that about 75 percent of farms have fewer than five cows, these services do not cover the majority

of small-scale farmers. In Moldova, there is a state-controlled AI centre, which is responsible for the AI services in the country. In Armenia and Georgia, the AI of cattle is still underrepresented; aside from isolated programmes among smallholders, it exists mainly in a few large dairies. In Azerbaijan, FAO has been implementing AI projects since 2015, which has had a significant impact on the quality and coverage of the AI services. Despite the existence of a modern AI centre, the performance of AI technicians still needs significant improvement in the country. In the Balkans, the capacities of countries in regard to AI services for small-scale farmers need to be better assessed. In North Macedonia, AI is managed by the faculty of veterinary medicine, which also manages sires. However, AI must not be a stand-alone activity. Rather, it needs to be incorporated into well-designed national breeding programmes and strategies; otherwise it can result in the erosion of locally adapted genetics.

A national animal identification and traceability system (NAITS), which is essential for the sustainable development of the livestock sector (including export, animal health, food safety and breeding) is available in Belarus, Moldova and Ukraine. Currently, FAO is implementing an animal identification system in Georgia, while in Armenia and Azerbaijan it is in the initial stages of planning and implementation, respectively. Performance recording is the basis of breeding-value estimation. Therefore, it is also one of the main pillars of a sustainable and effective cattle-breeding strategy. Although this service is available in Belarus, Moldova and Ukraine, only a limited number of farmers use the service. In Armenia, Azerbaijan and Georgia, performance recording services have not yet been developed.

Considering the urgent need to address climate change, practices that reduce greenhouse gas (GHG) emissions from enteric fermentation or manure storage are not yet being implemented across the region. Decisions on addressing issues related to climate change should be based on scientific evidence generated by the application of assessment methodologies available in guidelines developed by the livestock environmental assessment and performance (LEAP) partnership. LEAP is an FAO-led multistakeholder initiative that seeks to improve the environmental sustainability of the livestock sector through harmonized methods, metrics, and data (<http://www.fao.org/partnerships/leap/en>). Additionally, GLEAM-interactive (GLEAM-*i*) brings the core functionalities of the FAO Global Livestock Environmental Assessment Model to the public in a web application. The tool is designed to support governments, project planners, producers, industry, and civil society organizations to calculate emissions using Tier 2 methods. GLEAM-*i* can be used in the preparation of national inventories and in ex-ante project evaluations to assess technical improvements in animal husbandry, feed and manure management.

Resilience of livestock to the changing climate partly relies on diversified animal genetic resources. The National Strategy and Action Plans on Animal Genetic Resources is a valuable tool developed by FAO in Armenia and Moldova. The tool aims to monitor and support the conservation, sustainable use and development of these resources. However, centralized genetic conservation programmes in these countries have not yet been developed. Breeding programmes and development plans for individual

breeds have also been formed. For example, in 2019 FAO REU finalized strategic documents for Carpathian and Caucasian Brown cattle breeds in Armenia, Georgia and Ukraine. Although there are government-appointed national coordinators for the management and conservation of animal genetic resources in each country, the Domestic Animal Diversity Information System is not yet being properly maintained (see <http://www.fao.org/dad-is/en/> for more information on this system).

Antimicrobial resistance

FAO is currently building capacity on AMR surveillance and threat reduction in six of the region's countries: Armenia, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan and Ukraine. However, it is reasonable to assume that current capacity to conduct surveillance for both antimicrobial use (AMU) and AMR is very limited. In the absence of a clear picture on AMR and AMU, the capacity to prevent, control and reduce the risk of AMR is close to non-existent. Moreover, countries have not made any significant progress in creating enabling governance and legislative frameworks. In almost all countries, antimicrobials are sold without a certified veterinary prescription. In Turkey, an e-prescription has been recently established. However, its effectiveness has yet to be assessed. Given the weak private veterinary sector in the region, a functional regulatory policy that allows the use and sale of antimicrobials based on a certified veterinarian prescription is still doubtful. ■





PILLAR ONE

Animal health



The direct link between animal health or improved animal production and livelihoods or food security is not only intuitive, but also well established. Keeping high standards of animal health is therefore of utmost importance. Making the link between husbandry practices, particularly feeding and housing, and animal health will continue being the core of FAO's work in the region. However, prevention, early detection and rapid response to diseases, particularly those of a transboundary nature (i.e. transboundary animal diseases – TADs), are the main approaches to helping farmers enhance their production and their livelihoods while minimizing animal diseases. Countries need to be prepared to confront animal health emergencies that can jeopardize and undermine many years of investment in the livestock sector. Diseases such as African swine fever (ASF) and highly pathogenic avian influenza (HPAI) can cause an entire animal population to vanish in a matter of days, consequently threatening the livelihoods and food security of thousands of farmers and their families. During the strategy implementation period, REU will continue advocating for veterinary services to be well-prepared to respond to animal health emergencies in order to achieve rapid and cost-efficient control.

Improving animal health emergency management capacity is especially challenging in the region not only because many of the countries are low-middle income, but many also have low live animal and animal product exports, or low animal populations. As a result, prevention, detection and preparedness for animal health emergencies are of low priority for the governments, and the underdeveloped private sector is not able to influence policy-makers to address these constraints. The result is that the competent authorities, which are generally underfunded, underequipped and understaffed, struggle to cover the routine tasks for endemic diseases, yet they are called upon, as per legal obligation, to respond to animal health emergency situations. After a crisis has ended, not enough emphasis is placed on recovery, and lessons learned are often neglected.

The main approach in assisting these countries is twofold: First is strengthening **non-disease-specific** capacities, which are required mainly to address animal health emergencies, but also to increase capacities of the competent authorities to deal with daily (“peace time”) issues. Second is strengthening **disease-specific** capacities, which will depend on countries' priorities. Two main animal disease groups can be identified: TADs (including emerging diseases and zoonoses); and endemic zoonotic diseases, such as brucellosis, rabies and echinococcosis. For both non-disease-specific and disease-specific capacities during peace and emergency time, REU will advocate and support capacity building for the key concepts of emergency management – preparedness, prevention, detection, response and recovery. ■



Foundations

DISEASE PRIORITIZATION AND LEGAL FRAMEWORK

Prioritization of diseases is a critical step to ensure that there is a clear understanding of which diseases have economic and public health importance for the region and the countries. In many countries, actions on animal health are driven mostly by political decisions and ongoing projects by organizations such as FAO, OIE or the EUFMD. FAO should avoid situations when sustainability is not considered beyond the project's lifetime. Even when the actual needs are met by the projects, it is important for countries to have a clear understanding and vision of their needs and priorities and a strategy for fulfilling them. This can greatly assist in achieving stronger impact during the implementation of animal health-related projects by REU. Therefore, REU is supporting countries in determining their current priorities through disease prioritization events, assessment missions and surveys. The prioritization process is conducted under the One Health approach, the understanding that the health of people, animals and the environment are connected and hence the need for coordination between the human health, animal health and environmental health authorities,

particularly when involving zoonotic diseases. After priorities are set, it is critical to analyse the underlying legal foundations of preparedness, prevention, detection, response and recovery for the prioritized diseases. This enabling legal environment is critical to obtain funding for actions and to have legal backing when the competent authorities need to respond to and control diseases.

STAKEHOLDER INVOLVEMENT

Traditionally, the main partners for animal disease projects are the ministries of agriculture and veterinary services, as they are the competent authorities dealing with prevention, detection, preparedness, response and recovery related to TADs and zoonoses. These partnerships must continue as many policy decisions and actions lie in the hand of the competent authorities. Nonetheless, more attention should be given to private sector capacities and links with private veterinarians, farmers and livestock owners themselves, as their personal decisions determine the impact and efficiency of the disease management measures that are implemented. Stakeholder involvement should also

include academia, slaughterhouses and traders. Education and involvement of livestock owners, particularly when organized as associations, should be a significant part of all projects, as the official and private veterinary presence in most of the region's countries has been weakened over the past decade. Furthermore, projects should invest at least an equal amount of effort to build up the institutional extension capacities, as training of farmers alone through projects is unlikely to be enough or sustainable over time. In low- and medium-income countries, as with high-income countries, associations and NGOs exist. Depending on their relevance, they may act as main partners for reaching out to livestock farmers. This should also include groups that represent the interests of rural women, children and minorities. Hence, REU is committed to provide professional associations of service providers and farmers the needed support to ensure their cooperation and capacity to take long-term ownership of their functionality and mandate. At the same time, training on animal health or biosecurity should not be a stand-alone exercise, as farmers often view it solely as an additional financial investment to incur. Therefore, this capacity-building process should come as a package in which farmers also receive practical advice and training on feeding, husbandry practices and market-oriented business knowledge.

We observe with great concern that in many countries in the region (mainly from the former Soviet Union), the average age of official veterinarians and large-animal veterinarians has increased compared to a decade ago. This has an impact on the motivation and ability to implement updated knowledge and innovative technological solutions (e.g. mobile applications, data analysis) in the field. More importantly, as the older generation retires, the supply of new official veterinarians in many countries is not ensured, leaving three solutions:

- **Improve wages for state veterinarians to make official veterinary work more appealing.** There are few countries with adequate financing for this to be a feasible option. For most countries, budget reforms will not be an option, and FAO's capacity to influence in this arena this is very limited.
- **Private practices gradually take over state responsibilities, through contracts or full delegation.** This is certainly an option for countries where official veterinary work is covered by "approved veterinarians" who work full-time on the farms. In the case of smallholders and backyards, a likely scenario in some countries is that official veterinary and large-animal veterinary presence will decrease with time, as it will not be profitable for private veterinarians to service them.
- **Livestock owners are gradually assuming the responsibilities of official and private veterinary presence.** Due to gradual decline in veterinary services capacity and presence all responsibility for coping with animal disease situations (from biosecurity, to medication, to disposal of dead animals) will fall on the livestock producers. This solution, however, will lead to a disconnect from central policies and might create pockets where disease will circulate and spread without the knowledge of the competent authorities.

In countries facing contracting veterinary services, REU will advocate for educating young official veterinarians, including women, with new tools and innovative approaches, as they are the ones who may influence the structure and functionality of the veterinary services. REU is also continuously advocating for modernizing the public veterinary services to focus on regulatory work, including inspection of private and public goods related to animals and animal products, whereas the private sector takes charge of implementing all other tasks, such as vaccination, surveillance, routine disease control, awareness-raising, among others. This is particularly urgent in several countries in the region where either the inspection role of the veterinary services has been removed or private sector development has been suppressed by counterproductive regulations.

INNOVATION AND TECHNOLOGY

Several technological developments are being applied in the developed world that could also be applied in the region, e.g. smart farming, animal welfare, digital animal-monitoring, spatial information exchange systems for apiculturists and croppers, cellphone-based honey yield monitoring solutions, integrated databases, mobile applications, online training, and visualization tools. Mobile applications are a good example of how to integrate innovation to the immediate access of the livestock sector different actors. Well designed applications can: provide for users new and up-to-date knowledge (in the local language) about animal diseases and best practices; send alerts on upcoming disease threats; and collect data (including photos and geocoordinates) for surveys and censuses or disease events in livestock and wildlife. Data stored in cloud systems can then be analysed manually or through automation.

Although data analysis capacity is limited in the region, data collection in this form already exists.

The COVID-19 pandemic brought into wide use different online platforms such as zoom® and WebEx ® that allow training to be conducted, even with simultaneous translation to several languages, for hundreds and even thousands of participants. The adoption of these technologies provides endless opportunities to conduct online capacity-building. However, this way of training is not suitable for all actors, particularly farmers who often lack access to internet and are computer-illiterate. When conducting these training, however, it is important to provide high-quality presentations that will ensure the participants' attention and learning.

REU will continue to explore relevant and feasible opportunities to introduce these new technologies to both veterinarians and livestock owners. Given the abundance of such initiatives by different organizations and companies, REU must be very cautious when selecting the suitable option to ensure compatibility with other systems, avoid duplication and ensure sustainability, i.e. evaluating the likelihood that veterinary services (private and public) and livestock owners will continue using them in the long term. ■





The prevention, detection, preparedness, response and recovery cycle

Two of the main constraints of countries in the region are the limited knowledge about veterinary epidemiology and a lack of analytical skills. The competent authorities do not have sufficient skills to understand surveillance data or assess disease risk factors in their countries. This may have the following consequences:

- Prevention measures are not disease- or country-tailored but remain generic, as the risks are not ranked or quantified.
- Risk-based surveillance is limited to geography (i.e. how close a territory is to the nearest outbreak), with very limited understanding of risk-based surveillance (i.e. within sub-populations).
- Response measures remain limited to responding to outbreaks (e.g. no tracing back and forward of outbreaks, no analysis of risk factors).
- Very few lessons are learned from past outbreaks.

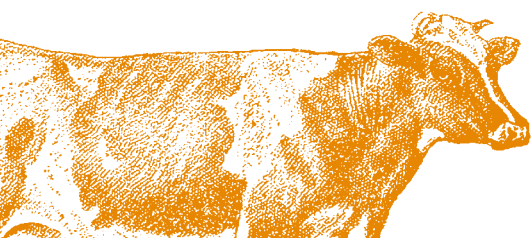
REU's work will focus on ensuring the enhancement of countries' knowledge on how to assess and analyse risk factors and animal health information and how to use this information while avoiding setting unrealistic and purely academic targets, such as increasing modelling, spatial statistics or network analysis capacities. These high-end analyses should be carried out with partner organizations that have qualified staff but do not have access to the data of the countries concerned. Bridging need and demand should be considered in all cases. REU will continue to advocate and train for risk-based surveillance that is suitable for the local financial and human resources capacity. Such training needs will take place within a long-term frame rather than stand-alone courses, and ensure that selected candidates are those who will benefit most due to their roles and assigned tasks. Similarly, REU will work with countries on how to apply the lessons learned from disease outbreaks in order for progress to be evident in the capacity to control outbreaks.

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| COUNTRIES OF FOCUS: |
| the entire region, particularly Caucasus and Western Balkans |
| PREFERRED TIMELINE: |
| 2020–2025 |

REU will follow the model suggested by FAO's manual for Good Emergency Management Practices (FAO, 2011) on key actions for good emergency management – prevention, detection, preparedness, response and recovery – and relate how these can be implemented from non-disease-specific (core functions) and disease-specific perspectives.

PREVENTION

A tremendous amount of resources saved, and negative socio-economic avoided, if adequate prevention measures are implemented in a timely manner to avoid the occurrence and spread of a disease outbreak or minimize its impact once occurred.



Disease-specific actions

Disease-specific actions depend greatly on the disease. The use of good vaccines when available is perhaps the single most effective prevention measure. REU is committed to promote adequate vaccine selection and good vaccination practices to optimize coverage and maximize herd immunity. As part of the prevention effort, it is crucial to ensure livestock owners, private veterinarians and competent authorities understand TADs and zoonosis transmission routes. Awareness campaigns and trainings targeted to the different audiences are key to achieve this. Understanding the main risk factors for priority diseases will enable the different stakeholders to be more receptive to specific preventive measures imposed or recommended by local authorities or the international community, including FAO and OIE. While engaging with competent authorities, private veterinarians and livestock owners, REU will focus on the main risk factors and risk pathways for the disease, as well as how the disease can be prevented (either through medical or sanitary measures).

Non-disease-specific actions

Strengthening risk communication is a key action. In many cases, livestock owners are not approached through appropriate communication channels regarding how they can prevent disease incursions. Today, the competent authorities still rely on traditional tools such as the enforcement of legislation, leaflets and posters to change the behaviour of livestock owners; however, success is limited. A more in-depth approach to proactively understand the behavioural and economic incentives of livestock farmers, thus coming up with tailored solutions that are feasible, sustainable and even more appealing, would drastically improve the level of compliance with rules and regulations. REU will actively promote interaction between the policy-makers and livestock producers and assist them to better understand each other,



the underlying disease problems and the feasible solutions. REU is also committed to provide policy- and decision-makers with appropriate tools to effectively communicate with the public, including livestock owners and other actors along the livestock value chain, and ensure their participation in relevant decision-making processes.

Biosecurity

Different biosecurity measures, depending on the production system and funding availability, can be implemented to prevent the introduction of diseases into farms or epidemiological units such as villages. Nonetheless, biosecurity requirements are also universal and should be promoted in all projects. Equal emphasis should be placed on educating livestock owners about best practices and promoting the acquisition of necessary equipment and consumables. It is clear that without adequate access to microfinance, several of the larger (physical) biosecurity improvements (e.g. double-fencing, changing rooms, mosquito protection) cannot be implemented for small-scale farmers, as they are not cost-effective. Nevertheless, biosecurity is also about simple cost-free changes in routines and practices, which can be of great efficacy. Thus, in cases

where adequate biosecurity measures are being implemented to protect a public good, such as in the case of the swine sector amid the ASF epidemic, it is also essential to have the right policies in place to allow livestock owners access to affordable financing mechanisms (e.g. low-interest-rate loans and microloans). REU is conducting many activities related to enhancing biosecurity measures among smallholders; however, during the strategy period, REU will further advocate not only for the right biosecurity measures, but also for the finance policies to access affordable credit and recognition schemes, e.g. quality labels, so that livestock owners will be willing to improve their biosecurity. This should be primarily at the policy level, ensuring that the government supports such initiatives, which can be driven by farmers' demand.

DETECTION

The competent authorities need to be able to detect TADs and zoonoses in a timely manner and with high accuracy. Traditional surveillance activities during the times of the Soviet Union and Yugoslavia relied on a widespread, strong official veterinary presence with active search for diseases, through

deep interconnection between farm veterinarians and official veterinarians. Livestock owners were not viewed as partners but rather as a liability, since they would not report notifiable disease because they may have lacked knowledge of clinical signs, did not trust, or even feared, veterinary services, and they were unfamiliar with reporting procedures. This historical heritage is still deeply rooted among livestock owners when it comes to surveillance plans for diseases.

In the last 20 years, particularly in former Soviet Union countries, official veterinary presence has substantially weakened, and farm animal veterinarians are not under the same inspection “pressure” as before. Therefore, livestock owners have become the first and last line of defense when it comes to detecting and reporting diseases, while they are also the ones who have the most to lose when epidemics strike. As a result, competent authorities have to shift from the widespread, active veterinary search methodology (e.g. active surveillance), which is not cost-effective and hence cannot be maintained anymore under current underfunded veterinary services, to more targeted and farmer-focused approaches (e.g. risk-based surveillance and passive farmer-reporting), as has already happened in developed countries. REU will continue advocating for risk-based surveillance and for livestock owners to be considered as partners when it comes to the detection of TADs and zoonoses and protecting animal health as a public good. However, this should not contradict the need to strengthen the private veterinary sector that will support farmers, particularly on disease recognition and prevention

knowledge. Therefore, REU will work also with private veterinarians to ensure their capacity to provide this timely support.

Disease-specific actions

Disease-specific actions include establishing case definitions in a clear and objective language which will be well understood by livestock owners and increase their overall knowledge. In parallel, it is important to analyse the laboratory capacities to diagnose priority diseases with high accuracy and in a timely manner. It should be clear among competent authorities, veterinarians and livestock owners that only laboratories can confirm a disease. Some specific actions, particularly stamping out, should take place only after disease confirmation by the laboratory. REU will ensure that, where adequate laboratory capacities exist, these are maintained, and where gap analysis shows major gaps, laboratories are supported with training, study tours, equipment and reagents necessary for the diagnosis of priority TADs and zoonoses.

Non disease-specific actions

Since early detection relies mainly on passive surveillance, timely disease-reporting by farmers and others along the value chain (e.g. transporters, service providers, abattoir workers) to the competent authorities has paramount importance in the success of disease response and outbreak control. For this to occur, competent authorities must build trust and mandate farmers to report disease so that farmers will not hesitate to report out of fear of the consequences. Should animals have to be culled or products destroyed, it is crucial to establish a fair and timely

compensation mechanism in order to encourage reporting. REU will continue advocating with government officials to build this trust and, when relevant, have appropriate policies, particularly in cases of quarantine, stamping out and compensation, to ensure continued trust between livestock owners, private service providers and authorities.

PREPAREDNESS

The capacity of both the public and private sectors, i.e. veterinary services, private veterinarians and farmers, to cope with the sudden occurrence of disease outbreaks, particularly the ones of a transboundary nature and with high socio-economic impact, largely depends on how well prepared for the event they were (FAO, 2011). The LSD outbreaks in the Balkans, ASF in Europe and even the recent COVID-19 pandemic with its heavy socio-economic tolls only emphasize the need for a good preparedness strategy. The preparedness process must be implemented during peacetime, when all aspects of disease outbreaks are clearly planned in a well-structured and thoughtful way, and include contingency planning.

Overall, we can see that the attitude toward preparedness in the region among low- and middle-income countries has improved in the past five to ten years. However, it still remains relatively weak compared to high-income countries. Modern emergency preparedness relies on the collaboration between all relevant stakeholders and transparency on who will do what, where and how. Plans (contingency plans), training of staff, equipment needed for response, and simulation exercises are all interlinked to achieve the best possible outcome. REU will advocate for the components of emergency preparedness, i.e. planning, training, equipment and exercises, to be kept balanced while striving for staff of competent authorities to develop skills



that they can actually use during an outbreak. While most preparedness tasks are not disease-specific, supporting countries with up-to-date information and practical advice on how to respond to TADs and zoonoses should be disease-specific. REU aims at supporting countries to formulate their contingency plans and validate, while fine-tuning, their response strategies. REU also aims at advocating for periodic review of disease-specific contingency plans and disease-specific operational manuals, enabling both central and local competent authorities to understand their current level of preparedness, gaps and needs. This support is achieved by training, where visual material and examples are provided on how to deal with an emergency situation, and through simulation exercises based on real data and scenarios that enable participants to truly relate to and engage with the exercises. REU will seek to support countries in finding the most effective ways to train staff on general aspects of preparedness for disease outbreaks. In this regard, key issues are: the development of high-quality training materials, and the utilization of diverse methodologies (on-line or face-to-face) that best adapt to the circumstances; single events or training of trainer or cascade approaches; and obtaining feedback on the events. Recent examples led by REU are the online trainings on ASF and LSD preparedness, which have been given to hundreds of veterinarians during the COVID-19-related restrictions on travelling and face-to-face meetings. REU will continue supporting countries in developing better contingency plans and standard operating procedures. REU will also continue assisting countries in planning, implementing and evaluating their own simulation exercises. There is a need to continue providing countries with various types of simulation exercises and assist them to determine which ones are suitable to address any gaps. Feeding lessons learned from an exercise back into the system and further into practice is a difficult task because too often

the acting players fear of changes or are even unmotivated to implement them. This perpetuates bad practices that do not contribute to improving preparedness for the next emergency event.

RESPONSE

The capacity of the national veterinary services, as well as private veterinarians and livestock owners, to rapidly respond to disease outbreaks will eventually determine the impact of the disease on the capacity to produce food at local or national level and, hence, also on livelihoods and food security. Diseases such as PPR and ASF can wipe out an entire herd in a matter of just a few days, creating a catastrophic situation in terms of income and food security. Likewise, in the absence of timely control of zoonotic diseases, these can eventually translate not only into an economic burden, but more importantly into a death toll. REU will advocate for giving sufficient attention to establish disease early detection systems and preparedness during peacetime, in order to minimize disease impact during outbreaks.

Disease-specific actions

The first and foremost task of REU is to support countries with its relevant expertise, whether through in-country missions, written guidelines or tele-support. In cases of severe disease emergency situations, REU will work closely with the Emergency Management Centre for Animal Health at FAO headquarters for advice and or mission support. REU, with or without the support of the Centre, has vast experience organizing support missions to affected countries, where the epidemiological situation is assessed, gaps and needs are identified, and recommendations and a tentative action plan are provided by experts. One of the main drawbacks in the region in terms of countries' capacity to respond to disease outbreaks is the ability to



conduct outbreak investigations, and to do so on a routine basis. During the Strategy period REU will continue providing targeted training on outbreak investigation for TADs in general, including foot-and-mouth disease (FMD), ASF and PPR. Building this essential capacity enables countries to collect information during disease outbreaks and analyse the data gathered to improve detection, prevention and response.

Non-disease-specific actions

Compensation. In many countries, stamping out is still the default measure for many TADs outbreaks, such as FMD, HPAI, ASF and LSD. Compensation to farmers for their loss of livelihoods is of major importance. Compensation schemes aim to financially compensate livestock owners for the losses suffered due to disease control programmes. If compensation is too low compared to the animals' market value, does not exist at all, or is paid with significant delay and cumbersome bureaucratic

procedures, livestock owners will not collaborate with the competent authorities, particularly in notifying the disease presence, or by trying to hide, sell or slaughter the animal. On the other hand, if compensation is too high, it might cause the deliberate spread of disease or false reporting. While in many countries stamping out is a possible strategy to control TADs during outbreaks, there are often no dedicated policies or funds to quickly compensate livestock owners for stamping out. In these cases, care must be taken to find alternative solutions by providing answers to questions such as: Are there funds or other mechanisms, such as livestock insurance, available within the country? Is vaccination an option? Is partial or modified stamping out an option? Is regionalization an option? Thus, REU will advocate for appropriate compensation schemes and policies.

Stamping out and carcass disposal.

Stamping out and carcass disposal generally follow the same structure regardless of which TADs are in question. There are differences when it comes to livestock species, but the main methods are generally

the same. What is important is to find the most practical solutions for each country and situation. REU will actively advocate for the presence of appropriate policies and legislation, and propose alternative solutions for handling disease outbreaks without a full stamping-out approach. The choice of the stamping-out strategy – full or modified, combined with vaccination and other measures or not – should depend on the disease and local circumstances (e.g. in some cases, it is better to opt for modified stamping out when clinical cases are severe). As a general rule, however, REU will advocate for considering modified stamping out for several TADs, including FMD and LSD. REU will guide countries on which best practices are available to them when it comes to stamping out and carcass disposal. REU will also advocate for innovative, environmentally friendly and economically feasible carcass disposal methods, such as on-farm composting, through training or guidelines.

Emergency vaccination. For certain TADs outbreaks such as FMD, PPR and LSD, campaigns for emergency vaccination is a frequent measure.

Nevertheless, the effectiveness of emergency vaccination is often limited in containing the spread of the outbreaks for a variety of reasons, among them: appropriate vaccine match (in the case of FMD); vaccination coverage, cold chain maintenance; and strategic risk-based vaccination versus mass vaccination approach. In addition, emergency vaccination is often performed where the animal population is already immune due to the infection and hence its use is a waste of financial resources. During these vaccination campaigns, countries still face limited financial and human resources, particularly where the veterinary private sector is not sufficiently developed. This lack of resources has a direct impact on the vaccination efficacy and the capacity to contain the spread of outbreaks. REU has already developed guidance on vaccination for LSD, and will continue advocating for its use. REU will guide countries on how to conduct emergency vaccinations for different TADs, working with partners such as OIE and the EUFMD, through training, webinars and a variety of publications, including guidelines.



RECOVERY

Once a TADs outbreak has been controlled, the ultimate goal is to return to the situation prior to the outbreak and even “build back better” the capacities for early detection and rapid response to disease outbreaks. This is also an opportunity to enhance the preparedness phase. In order to achieve this, several conditions need to be in place. When it is believed that infection has been eliminated, a series of verification programmes should be carried out. In case of non-endemic TADs, it is essential to provide objective proof to other

countries and to the international community that the country has regained freedom from the disease. This may provide the foundation to restore and develop export trade in livestock and animal products (FAO, 2011). Further, it is important that all actors involved in the outbreak control, from competent authorities to private veterinarians to livestock owners, will be engaging in a process where lessons learned from the outbreak are discussed, evaluating what went well and what went wrong. REU aims to support countries not only during the disease emergency, but also during the period following the emergency,

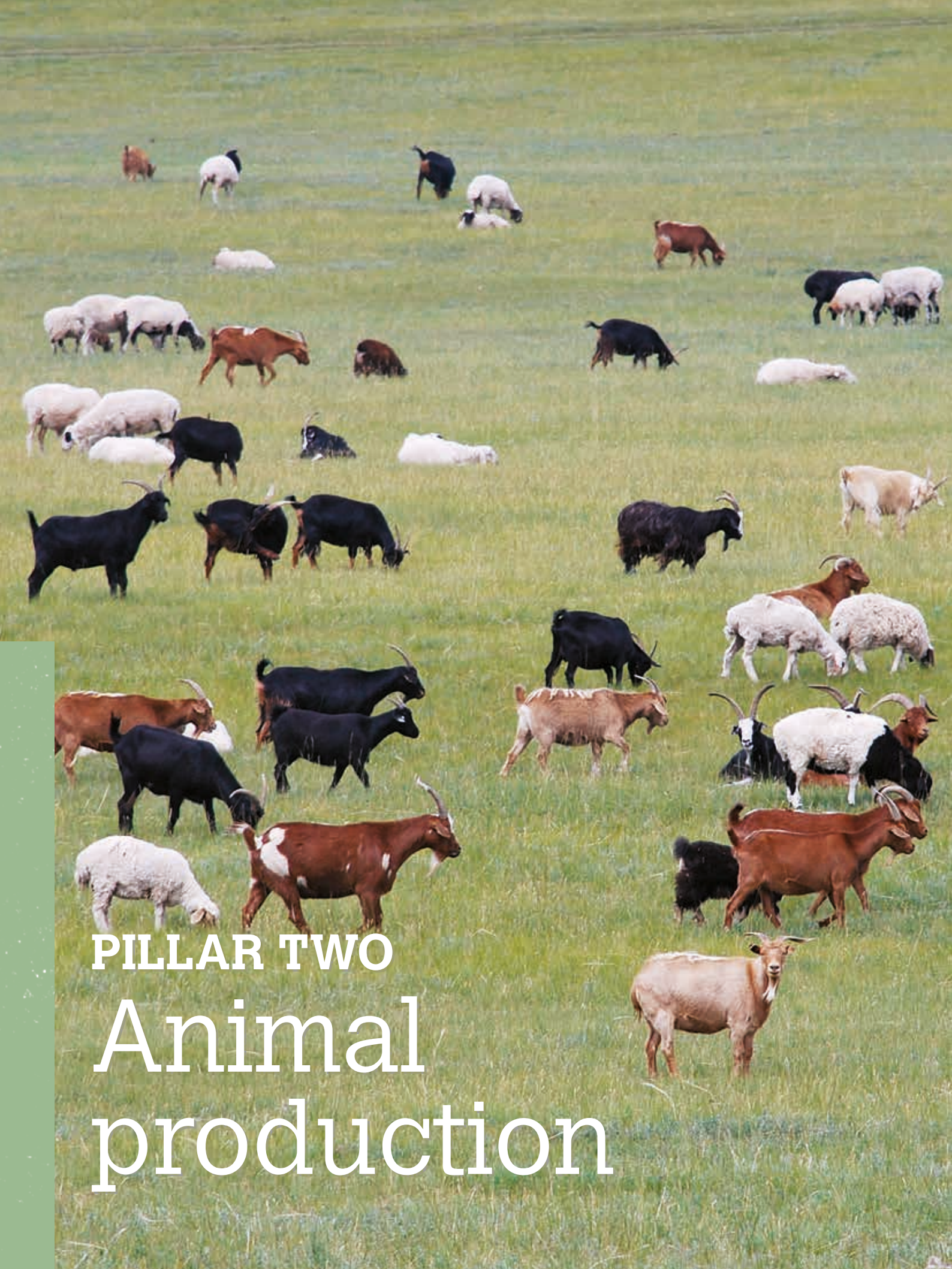
when competent authorities move towards the preparedness phase and need assistance in: learning from the pertinent lessons from the emergency experience; planning for a vaccination exit strategy; and receiving OIE disease freedom status, when relevant. Much knowledge is accumulated after a TAD is controlled, but often the competent authorities do not have the time to analyse and reflect on this knowledge, as the next emergency is already at the doorstep. REU is committed to assist countries in self-assessing their response to the outbreak and determining areas of further development. ■■■

Examples of REU's strategic approach to TADs: African swine fever and lumpy skin disease

Both ASF and LSD serve as excellent examples of REU's strategic approach to TADs while integrating all the principles discussed above. While both ASF (in domestic pigs and wild boar) and LSD (in cattle) are diseases that were historically restricted to Africa, both diseases made incursion into Europe in 2007 and 2015, respectively, eventually spreading all the way to China, causing considerable economic losses and affecting farmer's livelihoods and trade. As these diseases were new to the region, veterinary services and the farming community alike were ill-prepared for their prevention, detection and response. Over the years, REU has been working hand in hand with veterinary services, as

well as the farming and hunting communities, to address all of the main aspects of disease preparedness and response and to develop a comprehensive set of tools and pool of experts ready to be deployed within the region and beyond (see table below). Such efforts have been closely coordinated within the region, through repeated workshops and consultations with countries as well as the other main international agencies dealing with animal health, i.e. the European Commission, OIE (often through the Global Framework for Progressive Control of Transboundary Animal Diseases (GF-TADs) and the regular Standing Group of Experts meetings dedicated to both diseases), or the EFSA.

| | African swine fever | Lumpy skin disease |
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| Training | On-line training on ASF Preparedness (English and Serbian); Regional trainings on Wild boar management, Risk communication and outbreak management; Lab training; Training-of-Trainers (cascade training) for veterinarians and hunters; Desktop simulation exercises; Videos for standard operations in the field. | On-line training on LSD Preparedness (pilot and in Russian); Training-of-Trainers (cascade trainings); Desktop simulation exercises. |
| Awareness | Fully editable leaflets in (online repository); Mobile App for the reporting of wild boar carcasses (iMammalia); Regular updates on ASF activities globally (email and online); Online coordination meetings. | Fully editable leaflets and posters (online repository); Videos; FAO position paper on LSD in Eastern Europe and the Balkans; EMPRES-360 special issue on LSD; Regular email updates; Situation updates. |
| Guidelines and manuals | ASF manual (10 languages); Wild boar management manual (4 languages); Pig biosecurity manual (3 languages). | LSD field manual (8 languages); Practical considerations for Carcass management (7 languages); LSD contingency plan template; Guidelines for developing vaccination plans, surveillance for early detection. |
| Other tools | Cost-benefit analysis tool; Risk-mapping of hunting grounds; Pig sector surveys. | Cost-benefit analysis tool; Geospatial risk assessment. |



PILLAR TWO

Animal production



Currently, livestock production, particularly ruminants, in many countries of Eastern Europe and Central Asia is lagging behind its potential due to a variety of reasons. The four main impediments to the sector's development are well interconnected:

- low-quality and insufficient animal feed with strong seasonal variability;
- absence of reproductive and breeding management, including AI in cattle;
- inadequate, often obsolete, husbandry practices, including housing; and
- lack of sustainable management of animal genetic resources. ■■

Feeding

It has been well assessed through FAO's and other organizations' work that the low livestock productivity in the region is mainly caused by poor feeding practices, in which both the quality and quantity of the feed are inadequate to support improved and sustainable production. Moreover, improperly balanced rations lead to unnecessary high GHG emission intensities. Therefore, improved livestock nutrition results not only in better production efficiency but also in mitigation of livestock's impact on climate change. Additionally, pastures are often poorly managed and the forage is of relatively low quality. The mismanagement of pastures contributes not only to underperformance of the animals but also to biodiversity deterioration, land degradation and lost opportunities

COUNTRIES OF FOCUS:

Central Asia, Caucasus and
Western Balkans

PREFERRED TIMELINE:

2021–2024

for carbon sequestration. Good-quality silage is missing from the diet of animals kept on family farms and by the smallholders for a number of reasons, among them the lack of the necessary knowledge and technology to adequately prepare it. Often, the production levels of local breeds cannot be assessed, as proper feeding is not available and therefore the genetic potential remains unmet. In other cases, animals from imported, high-production, exotic breeds, such as Holstein-Frisian



FAO has vast experience in delivering the message of appropriate pasture management to players at all levels as well as high-quality guidelines (developed by LEAP) to generate scientific evidence of livestock impact on the pastures, including biodiversity, soil carbon and water.

REDUCING FEED WASTE AND IMPROVING FEED QUALITY

The use of silage and hay is one of the most valuable ways to use forages for feeding ruminants. Nevertheless, in areas of Eastern Europe and Central Asia, almost no attention is given to feed quality, especially of hay and silage. In many countries, farmers harvest grass on the pastures with no consideration to the appropriate time for harvesting to maintain maximum nutritional value. Often, grass is harvested when it is too mature and its nutritional content is already low. Silage is not well prepared to ensure anaerobic conditions and appropriate fermentation. As a result, the risk of mycotoxins in the silage increases and hence its toxic impact, which can also leak into the milk and become a public health issue. Poor storage conditions for both hay and silage further decrease the feed's nutritional value and significantly increase feed waste.

Despite its worldwide popularity, silage production in Eastern Europe and Central Asia is rather low in volume. With the introduction of new silo technologies, which are targeted at smallholders and medium-scale farmers, the feed production of these

cattle, are under-producing or even developing metabolic diseases due to poor-quality and low-quantity feed. The reasons behind this situation include economics and knowledge limitations, including the lack of sufficient government support in terms of capacity-building through functional extension and advisory services and general provision of updated knowledge. There is an urgent need to improve feeding practices, particularly by the smallholders, in order to improve production efficiency and reduce GHG emission intensity. During the strategy period, REU will focus on this aspect of animal husbandry.

SUSTAINABLE PASTURE MANAGEMENT

Ruminant production in the region is generally pasture-based in the summertime. In most countries in the region, pasture degradation has become a major constraint for sustainable production, including the capacity to increase herd size and improve production with the introduction of more productive breeds. The latter have higher nutritional requirements that most pastures cannot offer. This is particularly true since the fall of the Soviet Union, when some pastures were being preserved by a rotational system. Currently, there is an overuse

of both summer and winter pastures, often due to animal overstocking beyond the pasture carrying capacity. A study found that, in the former Soviet Union, 89 percent of summer pastures and 97 percent of winter pastures are eroded from overgrazing (Quillerou *et al.*, 2016). Pasture productivity levels vary depending on the region but are generally low due to lack of proper management (e.g. rotation, fertilization).

With proper pasture management, not only can the degradation of grassland be avoided or reverted, but farmers can provide a better-quality feed for the grazing animals. Literature also suggests that well-managed pastures have high potential for carbon sequestration (Amezquita *et al.*, 2010). REU will continue working on advocating and training for sustainable pasture management at all levels, from policy-makers to herders' associations and herders, in order to ensure full engagement and action.



farmers can gradually improve. The new technologies could also help to cover the feed shortage that usually occurs during winter, when animals are housed in the barns and only hay is being provided as feed, and facilitate the timely harvesting of forages at the optimal stage of quality and yield.

With adequate knowledge and relatively little investment, farmers can improve the nutritional value of both silage and hay. REU promotes practical hands-on training to individual farmers, through farmer field schools (FFS), demonstration farms or training centers designated for this purpose. In 2020, REU published two leaflets and two booklets on haymaking and silage preparation and storage, which were translated into several languages in the region.

TAKING ADVANTAGE OF CROP RESIDUES AND AGRO-INDUSTRY BY-PRODUCTS

The availability of crop residues and agro-industry by-products presents a valuable opportunity to increase feed quality with almost no investment. Unfortunately, it is not a common practice among some small-scale farmers and in some countries in the region, despite the general shortage in animal feed. By-products of cereals, roots and tubers, pulses, oil seeds, vegetables and fruit are a natural result of many agricultural activities, as well as brewers' grains from brewing companies or tomato skin from canning factories. Crop residues can contribute about 50 percent of feed supply (Belete *et al.*, 2016).

With the use of crop residues, the feed shortage could be reduced at low cost and with relatively high benefits. Moreover, there are certain by-products, such as beet pulp and brewers' grains, which have a positive effect on cows' lactation and can result in an increase of 3.4 liters/day milk

production (Melendez *et al.*, 2015). REU is committed to promoting the use of crop residues and by-products and bringing stakeholders together to understand their lack of use, which is a result of logistics, management and storage, as well as lack of knowledge

about this opportunity. REU will develop the necessary mechanisms to enable farmers to gain access to crop residues and agro-industry by-products. Hands-on training and printed or media information can support this effort in the region. ■

Cattle-breeding

While environmental factors in livestock production can be improved to favour better production in a relatively short period of time, improvement of genetic features that favour enhanced production is a long-term process, however essential. Overall, many REU countries lack a centralized and well-structured breeding strategy or on-farm breeding programme, and many lack support (state or otherwise) for programme implementation. In addition, tools which support breeding management are missing or are not implemented adequately, such as animal identification and traceability systems, and performance recording, both on the farm and at central levels. The appropriate use of these tools is a prerequisite for breeding-value prediction, selection and planned mating that, in combination with AI, makes the cattle-breeding process

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| COUNTRIES OF FOCUS : |
| Caucasus, Western Balkans, Moldova, Ukraine and Central Asia |
| PREFERRED TIMELINE : |
| 2020–2025 |

effective. By using these tools, farmers can obtain feedback on the production performance of their animals, allowing them to improve on-farm management. REU will support and advocate for the appropriate use of available tools and the sustainable implementation of animal identification and traceability systems in combination with training on good breeding practices and the development of breeding strategies and programmes. The term breeding is often confused with reproduction; hence raising awareness on the differences between the two is essential to the programme.



SUPPORT TO DAIRY PRODUCTION FOR SMALL AND MEDIUM HOLDERS

The importance of dairy production for improving food security and livelihoods worldwide, and particularly in the region, is well documented. While the global trend indicates that the number of dairies is in steady decline and number of milking cows per farm is increasing, REU is committed to support the survival and development of small and medium dairy holders. This subsector of the dairy value chain has been facing many challenges in the last few decades, not only globally but particularly in the post-Soviet Union countries, where families that used to milk two to three cows for self-subsistence abruptly have had to modify their way of operation to survive in a competitive open-market system without state assistance. Further, following the collapse of the Soviet Union, collective and state dairy farms that used to raise between several hundreds to several thousands of animals were either divided between many smallholders or privatized. Privatization often occurred among people with no significant experience in the dairy business, but rather because of their interest in the value of the land. These farms were disadvantaged from the outset, as they used obsolete dairy

and animal health practices (e.g. feeding, genetics, disease control, milking, general husbandry and cow comfort) in addition to poor equipment and technologies, which had a direct impact on the quantity and quality of the milk. In the absence of effective veterinary and advisory services, progress in dairy production has been very limited in the last three decades and confined to relatively few large dairies that effectively used the privatization process. Thus, many small and medium holders have been left behind and are struggling to survive in the business. REU is committed to address all aspects of dairy production, particularly among smallholders, to support their survival and sustainable progress toward prosperity. This includes improving feeding practices, milk quality in terms of bacterial count and somatic cell count, as well as reproduction. REU aims to use several approaches to ensure that farmers are taking ownership of good dairy production practices. These include, but are not limited to, demonstration farms and FFS, where advice to farmers, including women and youth, will cover such topics as feeding, genetics, milking processes and hygiene (including routine maintenance of machinery), milking storage, reproduction and calf management, biosecurity and health management.

ARTIFICIAL INSEMINATION SERVICES FOR CATTLE

The demand for milk and meat production in Eastern Europe and Central Asia is expected to grow in the next decades. To satisfy the growing demand, better breeds are needed to significantly increase milk and meat production. Nevertheless, to reach the production potential of these high-producing breeds, it is necessary to improve husbandry practices, particularly feeding and animal health. In a fact, it has been estimated that current meat and milk production levels are less than half of the potential for the existing animals and assets in the region. For almost 100 years, AI has been used as the main approach to disseminate fast and safe genetic gain that allows improvement and increase in production. The use of tested and high-performing sires further ensures the efficiency and safety of this approach. Thus, in the context of smallholders worldwide, the main benefit of using AI stems from its capacity to provide farmers with the possibility of gaining from genetic improvements created elsewhere.

AI, together with properly planned and executed selection programmes, jointly with the estimation of bulls' breeding values, allows farmers to choose the adequate breeding strategy for their herds. Adequate breeding programmes, in addition to improvement of other husbandry practices, particularly feeding, will allow smallholders to arrive closer to their cattle's genetic potential. Nevertheless, several constraints prevent smallholders in the region from creating an effective and efficient AI programme. These constraints will be addressed as part of the capacity-building programmes that REU is striving to implement at country level. Among the constraints are:

- relatively low availability of highly skilled artificial inseminators;
- lack of availability of good-quality semen from local indigenous breeds;



- insufficient coverage of AI services, due to geographical, political and financial reasons;
- insufficient understanding of cows' reproductive physiology and basic principles by both farmers and artificial inseminators (and often the veterinarians themselves);
- farmers' insufficient familiarity with heat signs expressed by cows;
- inadequate handling of semen before and during insemination; and
- inadequate infrastructure, preventing cows from show heat signs, particularly mounting.

To overcome most of those constraints, different capacity-building activities are needed such as direct teaching, preferably hands-on (e.g. FFS), or producing and disseminating posters, brochures, handbooks, articles and videos.

Establishing a critical mass of skilled AI technicians, including women, will not only assist in the genetic improvement process and the resulting enhanced meat and dairy production, it will also make an important contribution to rural livelihoods by creating more employment.

REU is working on improving the local AI policies to create a conducive environment for AI services and a fast dissemination of genetic gain. There is a need for the region to develop an AI network, helping to make AI services available for every farmer and focusing on the AI infrastructure and AI technical knowledge and skills. For such a network to be established, farmers and relevant actors along the livestock value chains will need to be made aware of the importance of AI in genetic and production improvement. Further, AI technicians need to be able to advise farmers not only on the selection of sire semen, but also on other farm management activities that will enable successful insemination and eventual calving. Considering that many of the AI technicians in the region are trained as veterinarians, this will strengthen the overall



capacity of private veterinarians and hence contribute to their livelihoods. The sustainability of animal genetic progress programmes also depends on operational NAITSS.

NATIONAL ANIMAL IDENTIFICATION AND TRACEABILITY SYSTEM

The NAITs is not only important to enable trade activities, particularly export, but also for other animal health, food safety and production-related activities, both national and international. Animal movement control and the control and elimination of endemic diseases and TADs are closely linked. However, the efficiency of both heavily depends on an effective, updated and reliable NAITs. The NAITs also serves as a useful tool during breeding and is the backbone of pedigree and performance recording.

In the region, many animal identification systems have already been developed (e.g. Bosnia and Herzegovina, Ukraine), and currently REU is developing one in Georgia. Nevertheless, many challenges are still preventing the effective implementation of NAITs in the region. These include: (i) lack of capacity to use and analyse population datasets by competent authorities; (ii) lack of capacity to use and analyse

slaughterhouse disease information for epidemiological purposes; (iii) low-quality and loss of ear tags; (iv) limited participation of farmers and stakeholders, which limits animal registration; (v) reporting of animal losses at the farm or pasture level; and (vi) incorrect reporting of animal exits by slaughterhouses and exporters. In addition, in most cases, indigenous animals are raised in remote mountainous regions where the presence of veterinary services is weak, which makes NAITs implementation nearly impossible. REU is committed to continue advocating for and supporting countries in establishing a NAITs, as well as in the sharing of knowledge and technological solutions between countries. REU, along with FAO's Information and Technology Division, supports the use of core technologies and open-source solutions that reduce costs for development and maintenance.

Aging information technology systems and servers require renewal of NAITs infrastructure, and changing of legislation often requires adding new features. The application of mobile devices and GPS offers potential cheaper alternatives compared to system upgrading. As a result, many systems are becoming expensive for countries to maintain and regularly update. Without adequate knowledge to extract added value

from the information, many systems are marginalized, underdeveloped and becoming mere repositories of unused data.

REU is investigating the regional and global interest in developing multipurpose systems that allow animal identification and registration, animal traceability, animal health information and performance recording to be integrated and which could be provided free of charge to member countries. The system should be modular, allowing countries to set priorities, add additional features as needed, and reduce the cost of updating (for more information please refer to FAO, 2016b).

PERFORMANCE RECORDING

Performance recording is an essential practice to enable a successful breeding system and breeding strategies. Milk recording allows farmers to track their best and worst animals, through which the farmers can make correct management decisions. Performance recording also allows herd managers to identify, keep track of and treat sick animals immediately (e.g. clinical mastitis). Performance recording can help add significant value to any surplus breeding stock being sold off-farm in the country and abroad and can also be used to estimate cows' breeding values and to select the dairy bulls. The International Committee of

Animal Recording has set guidelines, standards and certifications for animal identification, animal recording and animal evaluation (<https://www.icar.org/index.php/icar-recording-guidelines/>). These guidelines can help to establish performance recording in the region. While recognizing the challenges in establishing comprehensive and useful performance recording, particularly among small and medium holders, there is a need to start supporting this practice among farmers. REU is committed to advocate for it through different awareness-raising activities that include training, mass media campaigns, and materials that

address farmers individually, such as brochures. The system should be simple to adopt and implement, allowing the most important information to be recorded in the initial phases. This will ease the process of generating useful data that the farmer can take advantage of in the short term and thus be encouraged not only to continue, but also to expand the data collection and encourage others to adopt the practice. The availability of mobile devices coupled with appropriate software products for performance recording that allow for easy data analysis have enabled FAO to promote the update and use of performance recording. ■

Genetic conservation

Millennia of local livestock production have enriched the region with many indigenous livestock populations, from poultry to small ruminants to cattle and insects. This provides a unique opportunity for the conservation of different indigenous breeds, despite the practical complexity. These breeds possess local traits that provide them an added value, particularly when it comes to resistance to diseases and harsh environments. Nevertheless, several limitations, which have been discussed above, do not enable these breeds to reach their genetic potential, or even be properly assessed. As a result, farmers tend to cross-breed them with exotic, higher-production breeds, with the hope of improving their production performance. However, if the limitations are not addressed, the production aspect will not be significantly improved and, more importantly, these indigenous breeds will vanish in time, together with their specific adaptive traits. Currently, most countries in the region lack a breeding strategy and the capacity to improve the genetic potential of their indigenous breeds. Consequently, farmers are not willing to keep these animals without cross-

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| COUNTRIES OF FOCUS: |
| Caucasus, Western Balkans, Moldova, Ukraine and Central Asia |
| PREFERRED TIMELINE: |
| 2022-2025 |

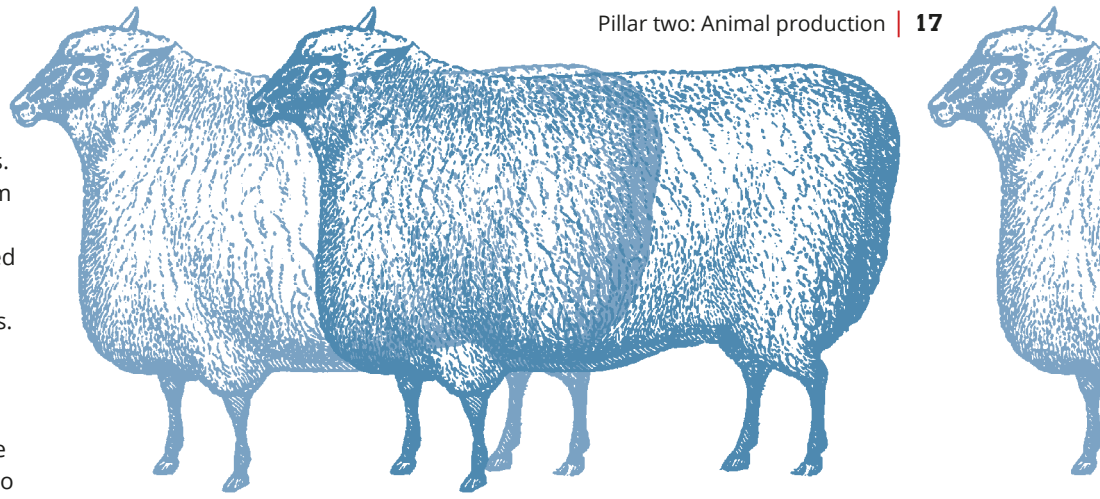
breeding them with more genetically improved breeds. Further, the lack of sustainable assisted reproduction technologies in many of the areas in the region makes it challenging to breed and maintain genetic diversity. Without locally adapted animals, the mountain pastures cannot be properly maintained through sustainable grazing; with the loss of locally adapted animals, livestock producers become vulnerable to climate change. However, improving general livestock management practices will directly improve breeding results. REU will support countries in formulating relevant strategies and action plans aimed at addressing the local and regional challenges to genetic conservation.

The Domestic Animal Diversity Information System, maintained by FAO, is an online database for animal genetic resources, which



allows countries to better monitor the current situation of local breeds. Currently there is national data from 182 countries, containing data on almost 9,000 breeds, including breed characteristics and information on their distribution and demographics. Data collection and information-sharing is the mandate of the national coordinators on animal genetic resources. REU will continue encouraging and supporting them to monitor the populations, document their key traits and characteristics, and analyse trends to make informed decisions and forecasts. Based on this analysis, REU will aim to establish a regular reporting circle to inform decision-makers on the current situation of local indigenous breeds. Further, regular trainings for national coordinators on animal genetic resources through regular consultations and workshops will significantly contribute to the process of monitoring and improving these resources. This must be accompanied by targeted advocacy aimed at establishing financial sustainability for breed conservation, mostly by identifying opportunities for keepers of locally adapted breeds to access markets and generate income from their animals.

Specific qualitative traits as well as the potential cultural value of locally adapted breeds have the potential to improve farmers' livelihoods by enhancing the processing and marketing of indigenous breeds' products. Particular attention needs to be paid to the involvement of women, as in many cases the processing of these products is traditionally the task of women. Generally, these specialty or local products are produced in small volumes, which poses difficulties for marketing them and entering a sustainable value chain. Nevertheless, developing niche markets, including by promoting these products as artisanal, can eventually not only improve livelihoods, but also contribute to breed conservation. ■



Small ruminants

In many REU countries, particularly in Central Asia and the Caucasus, small ruminant production is crucial for the economy amid rapid population growth and increasing demand for livestock products, mainly due to cultural, ecological and socio-economic reasons. However, efficiency and sustainability of production is challenging due to numerous restrictions such as animal diseases, limited natural resources, particularly high-quality pastures, and low productivity due to a lack of genetic improvement programmes and poor feeding practices. Previous attempts to increase the efficiency of small ruminant production resulted in limited progress. Inadequate feeding practices and lack of structured breeding programmes, inefficient dissemination of information, low utilization of improved production inputs and shortage of research-proven locally adapted production practices are among the most important factors hindering the growth of the small ruminants sector. There is still a need to modernize and upgrade production systems, ensure the smooth transfer of knowledge and technologies to small producers, and develop breeding practices with the changing economic and environmental conditions. Further, given the crucial role of women and youth in small ruminants production, the sector's development provides tremendous opportunities to enhance their integration into the economy. REU is committed to continue assessing the

COUNTRIES OF FOCUS:

Central Asia, Caucasus, Turkey and Western Balkans

PREFERRED TIMELINE:

2021–2025

status of the current small ruminant husbandry practices, relevant value chains and agricultural knowledge and technology transfer systems, using a gender-sensitive lens. REU will further equip relevant stakeholders with knowledge and skills, giving particular attention to involving women and youth, with the conviction that this is the most promising solution to improving efficiency of the small ruminant production systems. Timely and effective dissemination of feeding practices, breeding and herd management technologies and information through FFS will be prioritized by REU to enhance agricultural knowledge, information and technology transfer systems and improve smallholders' livelihoods. Additionally, the development of efficient knowledge and technology transfer (extension) systems with functional linkages to female and male farmers and other actors in the agriculture sector is an important factor for the reorientation of the region's smallholder farmers towards markets, income diversification, contribution to environmental protection and adaptation to climate change. ■

Family and backyard/small-scale poultry production

Family poultry farming (FP) is a key contributor to the well-being of rural residents in the REU countries. It provides the keepers with a steady supply of fresh eggs and meat, as well as with supplementary income from the sale of surpluses. Thus, FP plays an important role in the availability of the necessary daily amount of proteins for child nutrition. In addition, it can provide women, particularly single mothers and widows, with an easy and low-investment source of income. At the same time, FP allows for an efficient use of kitchen leftovers and of locally available feeds by scavenging. An added benefit of promoting FP is its very low GHG emission intensity. Nevertheless, the potential of FP is not fully exploited due to several limitations, including feeding capacity, husbandry and housing knowledge, and the capacity to control avian diseases, particularly Newcastle Disease. Vaccination is the most effective approach to control this and other avian diseases. The availability of quality vaccines and well-trained vaccinators is a precondition for implementing efficient vaccination

COUNTRIES OF FOCUS:

mainly Central Asia

PREFERRED TIMELINE:

2021–2025

campaigns. Ensuring the involvement of women as vaccinators contributes to effective poultry disease control as well as to the improved status of women in their households and their communities. Effective vaccination programmes should be combined with proper biosecurity measures and good feeding and husbandry practices

to strengthen the immune systems of the birds. Family poultry development and avian disease control interventions require support from different stakeholders and thoughtful design to achieve meaningful and sustainable outcomes. Very often, a “one size fits all” response is not successful. REU is committed to promote FP where appropriate and provide adequate support in terms of housing, feeding and disease control through hands-on training, demonstration farms and technical materials such as videos and brochures. This is particularly important for women, since FP can give them opportunities to generate income and organize themselves in small discussion groups that can develop into associations. Forming associations will enhance their capacity to purchase inputs, acquire knowledge and market their products locally and nationally. ■

Apiculture

Apiculture is a key branch of animal production in the region and offers unique income generation opportunities for family farmers, while providing ecosystem services. The most important products generated by beekeepers are honey, pollen, propolis, venom and royal jelly. The pollination services boost harvests of fruits, vegetables and other crops, but traditionally are not paid for, especially in countries of Central Asia and Eastern Europe. Three countries of the region – Turkey, the Russian Federation and Ukraine – are top global honey producers.

COUNTRIES OF FOCUS:

Caucasus, Turkey and Central Asia

PREFERRED TIMELINE:

2020–2025

The most important challenges for apiculture in the region include maintaining sustainable production by ensuring the health of the colonies, addressing invasive species, avoiding poisoning by pesticides, and improving honey producers' access to markets, including exports.

REU priority areas for action are described in the paragraphs that follow.



HEALTH

Development of apiculture is challenged by a number of colony health issues such as poisoning, varroaosis, nosematosis, American and European foulbrood, and chalkbrood.

REU is committed to collaborate with stakeholders to: (i) develop and adapt methodologies for risk assessment and approval of plant protection products in the region; and (ii) design and implement monitoring programmes to assess the health of bee colonies. These approaches are currently being discussed in the European Union, led by the EFSA. It is crucial for non-European Union countries to learn from the European Union experience on apiculture and consider adapting its solutions to the local realities or develop alternatives. REU will facilitate adapting these apiculture experiences to benefit local beekeepers, who are often lacking updated knowledge and very limited financial resources.

COORDINATION

Productivity of apiculture can be boosted and conflicts with crop farmers avoided or mitigated through inclusive coordination mechanisms. REU is committed to collaboration with the Apimondia, national governments and national beekeeping associations on two levels:

- **Coordination of policies** relevant to beekeepers, croppers, consumers and others through multistakeholder partnership processes. Apiculturists in most countries are part of national professional associations. On the international level, they are somewhat involved in global and regional networks such as Apimondia. Further enhancement of coordination and exchange of experience could be facilitated by establishing subregional networks for countries with similar backgrounds and beekeeping traditions, for example in Central



Asia and Caucasus, modelled on the existing Global Agenda Action Networks.

- **Timely exchange of trustworthy information** on the application of agrochemicals, harvesting and availability of melliferous flora times among apiculturists, croppers and other land users. This can be achieved through the development and promotion of information technology solutions, which would facilitate the free flow of spatial information among stakeholders in close cooperation with national authorities and national apiculture associations.

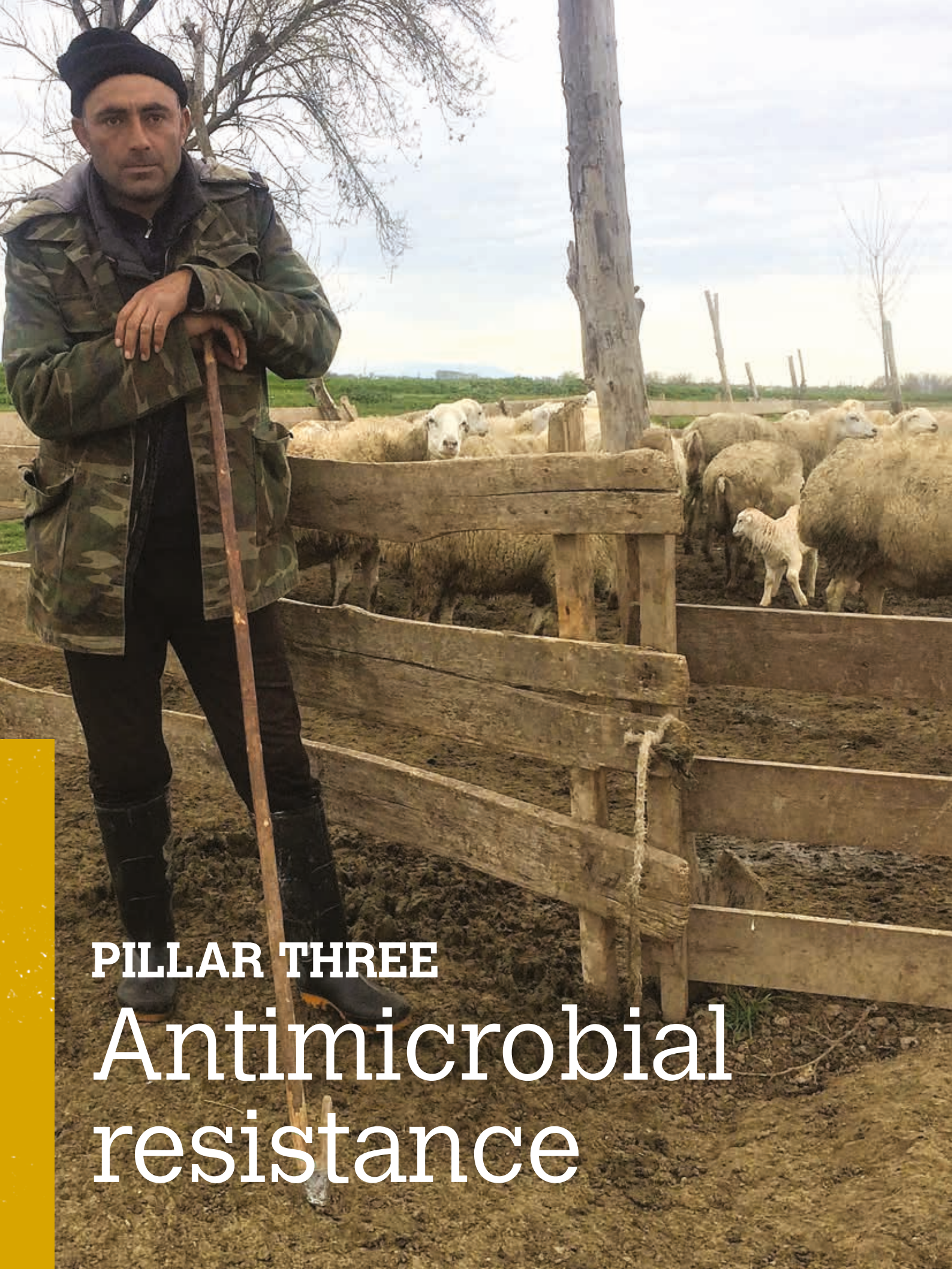
TRADE AND ADDING VALUE

The beekeeping sector is dominated by small, family-based producers who often lack the capacity to develop their own brands and market-promotion strategies. In spite of the existence of numerous market niches and the uniqueness of many apiculture products, the majority of producers do not benefit from opportunities to create added value to their products. REU aims to identify potential opportunities to support sustainable apiculture businesses by analysing value chains, researching markets, identifying innovative business strategies and promoting good beekeeping practices

International trade of honey and other beekeeping products is often challenged by an inadequate capacity

for quality control, including the absence of the origin tracing systems and unavailability of trustworthy and accessible lab testing services. For example, there are numerous cases of honey contamination with antibiotic residues, which leads to the rejection of the product by the buyer in the importing country. REU is committed to establishing partnerships with potential donors, national governments and apiculture businesses to improve traceability and laboratory testing capacity in the countries of origin. This will not only facilitate international trade, but will also lead to a reduction in the amount of antibiotics used in apiculture.

Due to the recent COVID-19 pandemic, many temporary workers have been forced to return to their country of origin and many to rural areas, where they abruptly joined the unemployment cycle. Training on beekeeping, while providing theoretical and practical knowledge, as well as startup kits, can contribute to rural employment and assist families in crisis to generate income. In addition, this is another opportunity to involve women in independently generating income, particularly when it comes to beehive products such as honey and beeswax. As in family poultry, REU can support women in organizing into producer groups that assist them in marketing their products locally, regionally and nationally and hence advance the beekeeping market chain. REU is committed to use the national capacity to expand this sector during training and follow-up support. ■



PILLAR THREE

Antimicrobial resistance



FAO is committed to the global fight against the emergence and spread of AMR. This commitment is described in the FAO Action Plan on Antimicrobial Resistance 2016–2020 (FAO, 2016a), which supports the Global Action Plan on AMR (WHO, 2015) by underlining the importance of a One Health approach. FAO works closely with the WHO and OIE in a Tripartite Initiative, as well as with other partners such as the Codex Alimentarius Commission, the United Nations Environment Programme and academia. A new FAO global action plan on AMR is being finalized and should provide the corporate vision as to how to address the threat globally. REU is committed to embrace this action plan and to adopt it to the specificities of the regional context. This particularly refers to economies in transition to the open market, where veterinary services are largely provided by the government and the private sector is still very weak.

The FAO Action Plan on AMR focus on four areas, which are described in the sections that follow. ■



Improving awareness on AMR

The necessary change to reduce AMR through prudent AMU requires action at all levels, from policy-makers and lawmakers to field veterinarians and farmers. Only by raising awareness among all actors can REU advocacy yield the desired results. Hence, the creation of awareness materials must be tailored to the local circumstances and each relevant actor to ensure that the messages are clear and understood. This knowledge must be translated into action in the form of policy and laws or the implementation of good husbandry practices and

prudent use of antimicrobials at the farm level. REU is committed to continuously approaching all relevant actors with tailored and updated information, using, when pertinent, innovative approaches that are also included in adult education to ensure that awareness is raised. There will be a particular emphasis on raising awareness at universities and vocational schools to ensure that the knowledge reaches the next generation of veterinarians and extension service providers. ■

Developing capacity for surveillance and monitoring of AMR and AMU in food and agriculture

Effective and sustainable surveillance systems to measure AMU and detect AMR occurrence is a precondition to curb the AMR threat. This must be supported by the appropriate policies and laws. Laboratory capacity is the main pillar of this surveillance, which includes adequate equipment reagents and skilled staff to test samples from animal origin, isolate the relevant bacteria and test for their resistance. To ensure the continuity of this capacity among state laboratories, adequate budget must be dedicated to the associated activities, including the purchase of sufficient reagents, equipment and its maintenance. Modern recording and reporting computational systems must be installed and regularly used and updated. Such systems and databases need to be able to exchange data with other AMR surveillance systems and databases (i.e. public health), but also those for the environment and even plants. Nevertheless, private laboratories should be encouraged to enhance their capacity and test samples from animal origin to detect AMR, with the legal obligation to report results to the appropriate government database. Results from testing need to not only reach the relevant actors in a timely manner, such as veterinarians and farmers, but also to be translated into action in case of resistance. This means that an action plan must be ready and functional, even at farm

level, to promote prudent AMU and good husbandry practices to reduce the detected AMU and AMR. Given that only a small number of countries currently report on their AMR surveillance results, REU is committed to work with countries to determine AMR baselines and subsequently establish surveillance programmes that will provide countries ownership and will encourage them to report their findings to an international database. Using its main tool to assess

laboratories' surveillance capacity – the Assessment Tool for Laboratories and Surveillance Systems – REU will continue assessing and enhancing this capacity in the region, as well as provide training to staff to address identified gaps in regard to AMR surveillance. Similarly, REU will aid countries in better understanding the use of antimicrobials by farmers in different production systems, and by veterinarians, veterinary pharmacies and feed mills, using surveys. ■

Strengthening governance related to AMR and antimicrobial use in food and agriculture

Effective governance guides the sustainable management of AMR. The capacity and resources of countries to address AMR are largely dependent on political commitment, appropriate policy and a relevant regulatory or legislative framework. Unfortunately, the long-term future effects of AMR, when compared to the current or imminent impact of TADs or zoonoses, implies that countries often do not prioritize AMR and the prudent use of antimicrobials. REU is committed to support the setting of international standards relevant to AMR and the development of the evidence and scientific basis on which to base such standards. In addition, REU concentrates on providing information on alternatives to AMU, the economic aspects of the AMR problem, and the measures needed

to address them. This effort aims to facilitate political commitment and the development of evidence-based policies by recognizing the different types of information needed. REU will also support countries to establish interagency and multistakeholder working groups to deal with a One Health challenge such as AMR. FAO headquarters has developed a methodology to assess national legislation spanning antimicrobial regulation, food safety, and animal, environmental and plant health. Additionally, FAO developed the Progressive Management Pathway tool for AMR, which helps countries to assess their AMR capacity and make stepwise improvements in AMR control. The tool was used in Kyrgyzstan and Tajikistan, where it has provided a good baseline for improvement. ■



Promoting good practices in food and agricultural systems and prudent use of AMU

In the REU region, the use of antimicrobials as growth promoters and as preventive and mass treatment of livestock has been promoted for many decades. Changing the mindset of veterinarians and livestock farmers to gradually shift into prudent use is perhaps the most challenging issue when it comes to AMR and AMU. The link between excessive use of antimicrobials as preventive and therapeutic measures is not only intuitive, but also scientifically well established. Thus, improving animal health through the adoption of good animal husbandry practices, including vaccination, biosecurity and adequate disinfection, will lead to less disease incidence and hence decrease the need for AMU. REU is committed to raise awareness and to train relevant actors, particularly farmers and veterinarians, on good husbandry practices that aim to prevent animal diseases, some of them zoonotic and transboundary in nature. Advocacy and promotion of good practices and

prudent use of antimicrobials will be conducted through the distribution of country- and stakeholder-targeted written and visual materials, farm visits, group presentations and, when feasible, through training of farmers and veterinarians at demonstration or pilot farms.

The REU strategy will adopt these four focus areas and work closely with FAO headquarters, as well with other partners such as OIE and the WHO, aiming at improving countries' capacities to reduce AMR threat in the livestock sector. Necessary adjustments will be made to tailor FAO's action plan to the regional context, taking into account existing capacities and availability of resources. Furthermore, REU will work closely with countries to develop and implement their national multidisciplinary actions plans for AMR under the umbrella of the FAO/OIE/WHO tripartite.

COUNTRIES OF FOCUS:

Caucasus, Western Balkans, Eastern Europe, Central Asia and Turkey

PREFERRED TIMELINE:

2020–2025

REU will continue its efforts to mobilize resources to support AMR work and help countries develop projects for funding submission, particularly through FAO's Technical Cooperation Programme and bilateral cooperation programmes, and by working with resource partners such as the European Commission and the recently established Multi Partner Trust Fund through the Tripartite. ■



Cross-cutting issues

Community-driven interventions and policy implementation

REU will strive for bottom-up approaches to achieve its development work on both animal health and animal production. Community consultation should be a core approach to assess livestock owners' needs as well as the needs of other actors along the value chain. This will be followed by addressing these needs as well as related good husbandry practices, aiming at improving animal health and production, through piloting them on the community or local level. This will be done mainly through FFS and new innovative approaches, which include new technologies such as mobile applications. The successful piloting should thereafter be expanded to additional communities and localities, whether through REU, other international organizations, NGOs or even government interventions. REU will leverage successes into the formulation of appropriate policies that aim to ensure the sustainability

COUNTRIES OF FOCUS:

Caucasus, Western Balkans and Central Asia

PREFERRED TIMELINE:

2020–2025

of different livestock-related practices and solutions.

FAO has a large capacity and vast experience in policy formulation aiming at assisting government authorities in developing their agriculture sector. However, it is important to recognize the Organization's limited assistance to countries to implement these policies. REU will strive not only to provide governments with feasible livestock policies but also to assist in their implementation using the hand-in-hand approach. This will ensure the long-term impact of these policies on the livestock sector with its different value chains. ■

REU's bottom-up approach for livestock development





Environmental sustainability and climate change

Given the strong link between animal health and production and the environment, as well as the agriculture sector's substantial contribution to anthropogenic GHG emissions (Gerber *et al.*, 2013), it is critical that REU's work leads to good practices and interventions aiming at protecting the environment and contributing to climate mitigation and adaptation. FAO has identified mitigation opportunities in the livestock sector (Gerber *et al.*, 2013). Many of the identified mitigation approaches provide the double benefit of reducing GHG emission intensity and improving production efficiency. This publication will be used as a guideline for choosing technical solutions when designing interventions related to climate change and livestock. At the same time, decision-making must be based on solid scientific evidence of the impact of livestock on the environment. Through the LEAP partnership, FAO developed comprehensive guidance and methodologies for understanding the environmental performance of livestock supply chains, in order to shape evidence-based policy measures and business strategies (see for example FAO, 2020a,b).

REU is strongly committed to the One Health approach to ensure the health of the environment as well as animal health and public health. REU will therefore strive to involve all relevant actors in the decision-making

COUNTRIES OF FOCUS:

All countries under REU responsibility

PREFERRED TIMELINE:

2020–2025

process on the right interventions. REU will also rely on FAO's publication "Transforming the livestock sector through the Sustainable Development Goals as an overall guide for linking its work to the SDGs" (FAO, 2018).

Many economically important diseases hamper the livestock industry in the region, and, if left unchecked, their spread can have disastrous consequences on wildlife health, particularly on endangered species. A tragic example is the case of the endangered Saiga antelope (*Saiga tatarica mongolica*) in Mongolia. In 2017, PPR spread due to uncontrolled outbreaks among small ruminants and resulted in the death of nearly 60 percent of this rare subspecies (Aguilar *et al.*, 2018).

While focusing on disease prevention and control, the irresponsible use of antiparasites, insecticides and antibiotics can not only cause resistance to these substances, but can also directly harm the environment, overloading it with polluting substances. Other disease control measures involve interventions that can directly harm the environment,

such as carcass disposal, which may involve burning in the open air or burying without any measures to protect from leakage into the watershed. Additionally, disposal of plastic material used during these interventions often involves burning or burial, with negative consequences to the environment. Further, efficient animal disease prevention and control will also reduce the use of GHG emissions from vehicles and other machines, which are more used during disease outbreaks control. Finally, healthy animals digest more efficiently and hence reduce GHG emissions.

Manure management, particularly in intensive and large production farms but also among smallholders, has become a real threat to the environment, especially water, but also to public and animal health. Manure drainage into water bodies such as lakes, rivers and watersheds or its improper use for fertilizing crop fields, can severely damage the delicate ecosystem due to the manure's richness in nutrients, and can transfer harmful bacteria such as *E. coli*, *salmonella sp.* and *Mycobacterium paratuberculosis*. Improved manure management to recycle nutrients and energy from livestock wastes is a priority. This will help reduce discharge and pollution, as well as associated public health risks (e.g. waterborne diseases), providing benefits to biodiversity and the economy in the process.

Good animal husbandry practices, particularly feeding and pasture management, while aiming at improving production of animal products, indirectly affect digestion efficiency and hence contribute to reduce GHG emissions. Therefore, REU's work with farmers, mainly through FFSS, on improving pasture management, foddering and other feeding practices as well as good husbandry practices (including housing and animal welfare), will indirectly contribute to climate change mitigation and adaptation. ■

Gender and equal opportunities for all

FAO proved that social and economic inequalities between men and women undermine food security, hold back economic growth and limit advances in agriculture (FAO, 2013). Consequently, FAO has committed to work towards gender equality via gender mainstreaming in all areas of technical cooperation, at all levels of the planning and implementation processes, and throughout each Strategic Objective of FAO's Strategic Framework. In line with these commitments and in the broader context of the SDGs of Agenda 2030 and the spirit of "leaving no one behind", REU outlined its Gender Equality Strategy (2019–2022), which focuses on: (i) the collection and analysis of gender statistics and capacity development of FAO technical staff and national partners to formulate and implement evidence-based agricultural policies and strategies; (ii) the economic empowerment of rural women through diversification and generation of income and improved access to markets; and (iii) making FAO technical assistance gender-sensitive by mainstreaming gender equality, human rights and social inclusion into all FAO initiatives. Furthermore, given the low capacity of veterinary services to conduct effective disease surveillance for early detection and rapid response, training women on disease recognition can put them in the front line of early disease detection through passive surveillance. This requires that, beyond access to training, women have good access to communication with field veterinarians to alert them on disease outbreaks. REU is committed to a continuous support of women's capacity-building and access to learning resources.

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| COUNTRIES OF FOCUS: |
| Caucasus, Western Balkans, Ukraine, Moldova and Central Asia |
| PREFERRED TIMELINE: |
| 2021–2025 |

REU does not stop here and will continue to push for social justice among minorities and vulnerable groups such as refugees and internally displaced persons. REU sees many opportunities to sustainably integrate these groups into the livestock sector, where these community members can be provided with decent jobs, incomes and food, thus helping them pull out of the vicious cycle of poverty. REU is committed to take full advantage of these opportunities during the strategy period.

In November 2019, REU conducted a workshop to identify priority areas for action to advance gender equality and social inclusion via REU livestock initiatives. Based on the outcomes

of the workshop, an REU strategy on gender equality and livestock was formulated. Its main areas of action will include: (i) systematically collecting gender-disaggregated and socio-economic data in livestock via surveys, assessments and gender-sensitive Vulnerability Capacity Assessments; (ii) securing vulnerable livestock farmers' access to productive resources via awareness raising of farmers and policy-makers and gender-sensitive needs assessments; (iii) increasing access of vulnerable groups to capacity development via innovative and tailored training; and (iv) providing comprehensive support to the business development of women livestock smallholders by strengthening women's networks and cooperatives and their linkages with policy-makers. ■





Farming as a business

The improvement of livelihoods and food security in the context of an open-market economy largely depends on access to markets, which is based on competition. This imposes on livestock owners a constant “selection pressure”, which can be particularly devastating for smallholders with very low production outputs. To improve their competitiveness and survival in the livestock sector, farmers must manage their farm with all the available tools and knowledge needed to manage a business and seek to improve the efficiency and competitiveness of their production. Since the transition to an open economy, smallholders in Albania, the former Soviet Union and Yugoslavia have faced enormous challenges while trying to secure their livelihoods. Often, lack of sufficient knowledge on how to manage their farm as a business in order to maintain their competitiveness was the main limiting factor. Having such knowledge and using it together with the implementation of good husbandry practices, such as improving feeding, animal health and housing, have the potential to increase production outputs and hence sales and income.

COUNTRIES OF FOCUS:

Caucasus, Western Balkans, Ukraine and Moldova

PREFERRED TIMELINE:

2021–2025

With its extensive experience in farmers’ business schools, REU is committed to train smallholder and medium-size farmers on the basics of farming as business in the frame of farmers’ business schools. This

training should be provided in several contexts – for example, to women’s groups or as part of national projects aiming to improve animal health and production. Additionally, REU strongly advocates for well-organized and managed farmers’ associations as a way to improve individual farmers’ access to markets and farm inputs. REU supports farmers’ associations in strengthening their power to negotiate with governments, negotiate prices, market their products, and even promote quality labels. All of these factors will assist in increasing the profitability of the individual farmer’s business. ■

Communication

REU is advocating for transparency in communicating with countries, between countries and with international organizations. This is relevant to disease reporting, despite the risk of losing disease-free status, with its economic implications. It is also the case for risk communication to the public in case of disease outbreaks, particularly those of a zoonotic nature. The COVID-19 experience only emphasizes the importance of timely communication and reporting, but mostly transparency. Transparency in communication allows stakeholders

COUNTRIES OF FOCUS:

Caucasus, Western Balkans, Ukraine and Moldova

PREFERRED TIMELINE:

2021–2025

as well as other countries to prepare for a disease event. REU is committed to train government officials in the art of risk communication through workshops, webinars and publications. Risk communication plays a pivotal role in advocacy among different

stakeholders as a call for action, and for sufficient funding to prepare for, prevent and respond to disease outbreaks, particularly zoonotic ones. One of the major challenges in the region, particularly among former Soviet Union countries, is to build the capacity for genuine two-way communication between the government and farmers as a way to build trust and confidence. REU is committed to encourage and train government officials on open communication with farmers, as well as to encourage farmers to provide feedback.

Technology transfer and capacity-building are successful at all levels if the knowledge is adequately delivered. Hence, the art of communication has a pivotal role in allowing knowledge not only to be learned but also to be implemented by the learner and lead to a positive impact on livelihoods. Considering the different levels of knowledge among different stakeholders, tailoring the message to each of them is of utmost importance to ensure that this knowledge has been adequately transferred. REU is committed to use the adequate language for each actors' group. Particularly among farmers and non-technical people, it is important to use a simple, non-technical language that can be understood and recalled. Information to farmers should contain as little text as possible and be complemented by clear, attractive and instructive illustrations. Information should be concise and practical so that farmers and veterinarians can implement their knowledge afterwards, as well as to transfer it to others simply and clearly. Thus, the quality of strategies, guidelines, technical booklets and even posters and leaflets is not so much a function of the text as it is the capacity to deliver knowledge in a succinct and attractive way so it can be implemented. The slogan "keep it simple" should be the summary of FAO's corporate communication philosophy and way of working. Similarly, REU is committed to use the

appropriate presentation tools, such as PowerPoint®, to deliver knowledge and messages in a clear and attractive way. The development of personal presentation skills is also encouraged where the use of plain language and well-modulated speech is emphasized

as the core of good speaking practices. **To summarize, FAO is committed to use succinct messages with the plainest language possible to ensure that knowledge is effectively transferred, implemented and passed on.** ■

Resource mobilization

REU's capacity to implement initiatives related to livelihoods, animal health and production, as well to reducing the threat of AMR, depends primarily on its capacity to mobilize extra-budgetary resources. REU's technical officers are devoted to the cause of livestock sector development and hence will work with other relevant FAO officers to engage with potential donors and strive to mobilize sufficient resources to ensure successful project implementation with sustainable impact. In this regard, it is important that the technical officers safeguard the balance between donor priorities

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|--|
| COUNTRIES OF FOCUS: |
| Caucasus, Western Balkans and Central Asia |
| PREFERRED TIMELINE: |
| 2020-2025 |

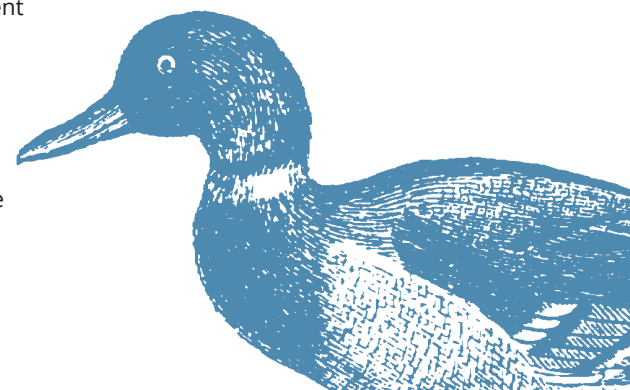
and regional or local needs. REU strives for open and regular communication with donors to maintain this balance and ensure not only that sufficient resources are mobilized, but that projects can be implemented in a reasonable time frame and have a strong and meaningful impact. ■

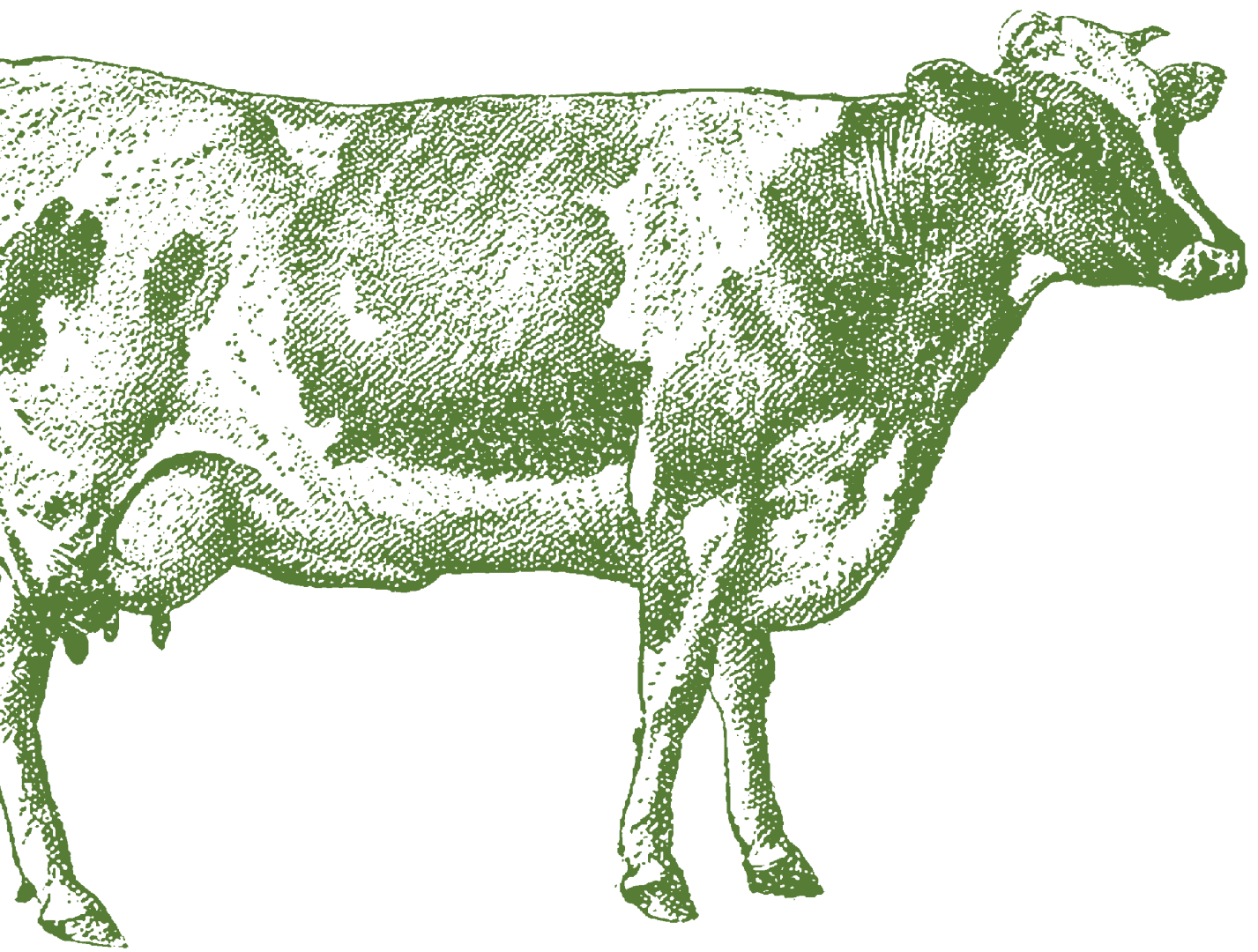
Coordination with other international organizations

REU seeks to achieve the best impact in all of its focus areas, ensuring livelihoods, food security and health. Joining efforts with those of other international organizations such as OIE and the WHO will avoid duplication, ensure synergies and harmonized messages, and enhance efficiency. This collaborative approach should be used particularly when it is evident that REU's work alone is not enough, especially in reaching different stakeholders, such as veterinary services or ministries of health in the case of zoonotic diseases and AMR. This approach also helps to ensure that FAO as a whole is using the One Health approach that aims to provide a holistic view of disease prevention

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|----------------------------|
| COUNTRIES OF FOCUS: |
| Caucasus and Central Asia |
| PREFERRED TIMELINE: |
| 2020-2025 |

and control by enhancing collaboration between animal, human and environmental health authorities. ■





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Annex

ANNEX 1. Total livestock population by species and livestock contribution to the agriculture GDP for 2018

| Country | Cattle | Goat | Sheep | Pigs | Chickens* | GDP |
|----------------------|-------------------|-------------------|--------------------|-------------------|------------------|------------|
| Albania | 467 000 | 917 000 | 1 864 000 | 18 400 | 7 000 | 43% |
| Armenia | 591 000 | 22 000 | 638 000 | 167 000 | 4 400 | 47% |
| Azerbaijan | 2 483 000 | 622 000 | 7 682 000 | 5 000 | 30 000 | 44% |
| Belarus | 4 342 000 | 63 000 | 88 000 | 2 841 000 | 46 000 | 58% |
| Bosnia & Herzegovina | 438 000 | 73 000 | 1 013 000 | 542 000 | 16 000 | 27% |
| Georgia | 910 000 | 51 000 | 856 000 | 151 000 | 8 000 | 43% |
| Kazakhstan | 7 151 000 | 2 281 000 | 16 416 000 | 800 000 | 42 000 | 40% |
| Kyrgyzstan | 1 627 000 | 807 000 | 5 361 000 | 51 000 | 4 600 | 50% |
| Montenegro | 87 000 | 30 000 | 186 000 | 22 000 | 700 | 51% |
| North Macedonia | 256 000 | 117 000 | 727 000 | 196 000 | 2 000 | 16% |
| Republic of Moldova | 167 000 | 163 000 | 680 000 | 406 000 | 40 000 | 44% |
| Russian Federation | 18 300 000 | 20 400 000 | 22 350 000 | 20 080 000 | 507 000 | 30% |
| Serbia | 878 000 | 196 000 | 1 712 000 | 2 782 000 | 16 000 | 31% |
| Tajikistan | 2 328 000 | 1 954 000 | 3 667 000 | 200 | 7 000 | 22% |
| Turkey | 15 944 000 | 10 635 000 | 33 678 000 | 1 300 | 354 000 | 31% |
| Turkmenistan | 2 217 000 | 2 372 000 | 14 074 000 | 9 000 | 17 000 | 59% |
| Ukraine | 3 531 000 | 583 000 | 727 000 | 6 101 000 | 187 000 | 23% |
| Uzbekistan | 12 814 000 | 3 806 000 | 17 775 000 | 59 000 | 53 000 | 43% |
| Average | 4 140 611 | 2 505 111 | 7 194 111 | 1 901 772 | 74 539 | 39% |
| Grand total | 74 531 000 | 45 092 000 | 129 494 000 | 34 231 900 | 1 341 700 | |

*Thousands heads.
Source: FAOSTAT, 2019.





A wake-up call for impact

The urgent need for a positive impact on the livelihoods of livestock keepers is elaborated in this Regional Strategy for Animal Health and Production for FAO Regional Office for Europe and Central Asia (REU). This strategy aims to present the main aspects of REU's work on livestock and includes three pillars – animal health, animal production, and antimicrobial resistance (AMR) – along with seven cross-cutting issues, among them gender, environmental sustainability, community farming as a business, and coordination with other international organizations.

The strategy follows FAO's commitment to the UN 2030 Sustainable Development Goals (SDGs) through continuous and dedicated work towards the improvement of animal health and productivity, while reducing the threat of AMR using the One Health approach.

