

### Vision

Develop a Sustainable
Knowledge Capacity for the Food and
Agribusiness Sector in Armenia

### Mission

Serve as an International
Center of Excellence to Develop Food
and Agribusiness Leaders through
State-Of-The-Art Education Programs
Coupled with Cutting-Edge Research





JOHN P. NICHOLS CHAIRMAN

ICARE FOUNDATION BOARD OF TRUSTEES

PROFESSOR EMERITUS
TEXAS A&M UNIVERSITY

ducation, Research, Outreach, These are the cornerstones of institutions of higher education ■ across the world. ICARE is no different. ICARE. was established in 2005 to formalize and advance our existing educational curriculum in the Agribusiness Teaching Center. The initial focus was aimed at developing graduates with knowledge and skills in applied economics and business for the food and agricultural industries of Armenia. As the reputation of our students and faculty grew, many opportunities were provided to reach a broader audience through nonacademic programs including training programs and service to the industry, government, and non-profit organizations in the formulation of business strategies and public policy. And in recent years, our applied research focus has become more extensive through contracts and grants which provide data, analytical results, and publications that enrich both our education and outreach missions. Well-conducted research and in-depth analysis are essential to the advancement of the Armenian food and agribusiness value chain.

The highlights of our current work, seen in this 2018 Annual Report, give examples of how we fulfill our complex mission. On June 5, 2018, 48 graduates of our baccalaureate and master's degree programs joined 14 more completing certificates from the EVN Wine Academy in entering the workforce. Two new certificate programs in Greenhouse Crop Production and Management, and Geospatial Information Systems and Remote Sensing were added to our educational and

outreach offerings. Our research studies include new work to understand the potential for "Building Organic Agriculture in Armenia" (BOAA). Our project in sustainable fisheries and recirculating aquaculture systems is now completed. Other exciting new research initiatives with international partners are nearing the launch stage.

The past year also marked an important transition in Armenian public life and which has not escaped notice in ICARE. We are in transition as well. We salute Dr. Vardan Urutyan, the second director of ICARE, on his election to the position as Rector of the Armenian National Agrarian University (ANAU). Our partnership with ANAU is stronger than ever and we look forward to many new and innovative opportunities to advance our shared education, research, and outreach mission. We also welcome Dr. Arthur Grigorian as the new Director of ICARE. He comes with experience, enthusiasm, and an entrepreneurial spirit. Dr Grigorian has the full support of the ICARE Board and we look forward to assisting him as he and the faculty, staff, and students reach for new levels of excellence in every facet of our work.

I am also thankful for the increasing number of donors and partners who are engaged in so many of our projects and programs from student sponsorships to facility upgrades. We look forward to meeting more of you and invite others to join with us as we "reach for the stars" in the advancement of food, agriculture and rural development across Armenia and the Caucasus Region.



ARTHUR GRIGORYAN

DIRECTOR ICARE FOUNDATION

nnovation is the flagship of ICARE! In this international center we nurture minds which will make the Armenia of tomorrow a great place to live and to create. We want the food and agribusiness sector of Armenia to grow dynamically, and we view graduates of ICARE as an important catalyst to make that change. Innovative ideas and methods rarely develop ad hoc. To make a meaningful and sustainable change towards an innovation-focused economy, we train our students to think broadly and globally and act locally so that their everyday actions add up to great success in their careers and in the development of Armenia. The education component is growing stronger as we add research, extension and modern agricultural development initiatives to the educational process.

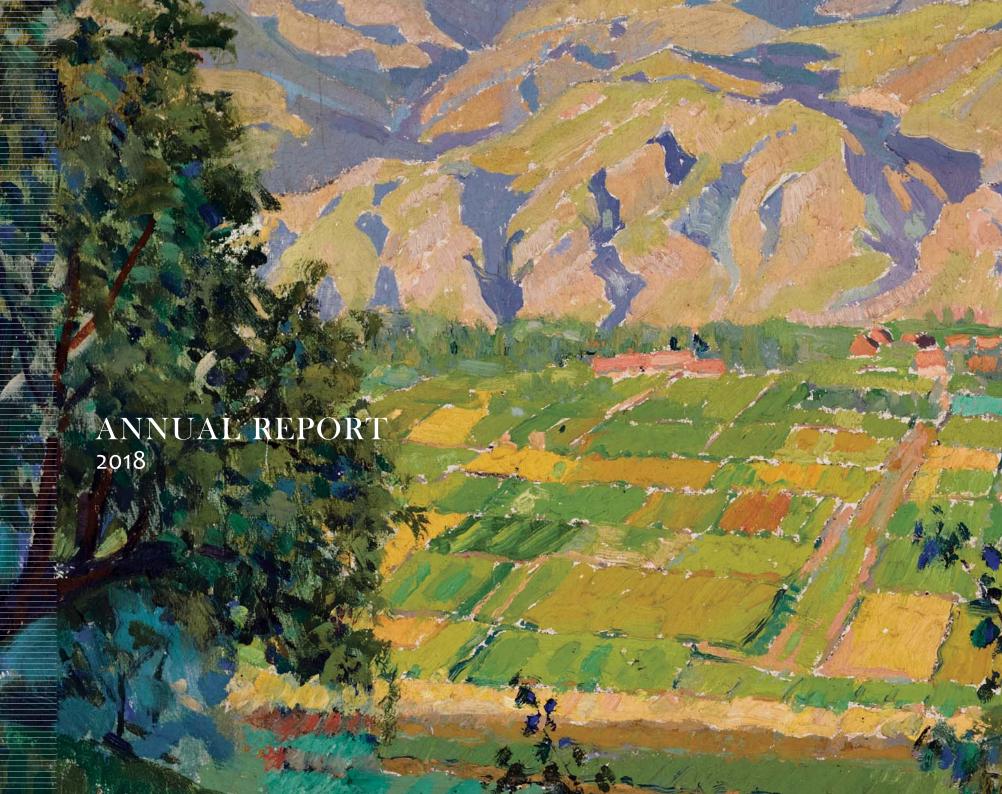
ICARE and its Agribusiness Teaching Center have been a driving force for modern agribusiness education in Armenia for 19 years. In 2014, ICARE's EVN Wine Academy was an innovative addition to the spectrum of academic programs, considering the rapid growth and development in Armenia's wine sector. Each step in the process of sustaining existing academic programs and in launching the new one was both a challenge and a reward. What made this year very special—a new spark in the eyes of our students about the political and economic developments in Armenia. These changes empowered our youth and gave them the confidence to create a "New Armenia". Our students see themselves as driving forces for developing a sustainable and inclusive Armenian economy. This confidence builds upon the many successes of ICARE graduates in Armenia and abroad. ICARE graduates have an exceptionally high professional employment rate. Within two months after graduation over 90% are working in the private and public sectors of Armenia. Many ICARE alumni have achieved their PhDs in the U.S. and Europe and returned to teach at ICARE. Our students and graduates are part of innovation in the food and agribusiness sector as founding entrepreneurs and partners in start-ups, consultants, coaches, or interns with industry.

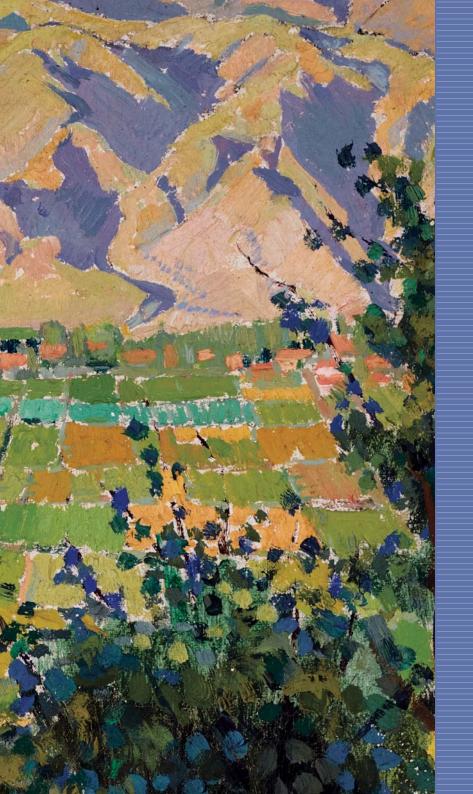
To support its mission, ICARE launched a new certificate academic program this year in Geographic Information Systems (GIS) and Remote Sensing (RS). The use of geospatial technologies has been increasing in recent years. More technology-intensive agriculture leads to a

higher value in the agribusiness sector. This first year 18 students completed the new certificate program. The curriculum was developed and the courses were taught by visiting faculty from Texas A&M University. A certificate program will be offered again in 2019.

The political reforms in the country also brought new leadership in ICARE's key local partner, the Armenian National Agrarian University. The University is now revising and updating its curricula, teaching methods and facilities. ICARE will continue serving as a model for the Agrarian University and help develop its capacity.

ICARE is a hub for innovative agribusiness education and research in Armenia. As an innovative and dynamic institution, ICARE keeps track of industry developments through a strong network with businesses. ICARE's academic programs train students with knowledge and skills which are in demand today and will be for years to come. The spirit of dynamism and innovation enriches the ICARE educational experience as faculty, staff and students create New Armenia. If you want to be the part of creating the New Armenia, join us as a donor, partner, and a student mentor!





### Education



## ICARE graduate won the best paper at AEA conference

Veronika Jaghinyan MAB program graduate of 2018



ore than 50 researchers from 14 countries gathered to present their papers on economics and Inance at the 8th annual meeting of the Armenian Economic Association (AEA) on June 14-16, 2018 in Yerevan. The meetings kicked off with a discussion on the economy of Armenia presented by Daron Acemoğlu, Professor of Economics at MIT. Prof. Acemoğlu, an ethnic Armenian born in Turkey, has expressed his willingness to help the new government of Armenia to initiate systemic reforms in the country's economy. Papers on a variety of categories such as innovation, industrial organization, marketing, education, labor, finance, and agriculture were presented. I am proud that ICARE graduates actively participate in this conference every year and make valuable contributions to the development of agricultural economics in Armenia. This year was no exception. Six presentations were made by representatives from ICARE.

I am very honored and thankful that my paper titled: "Economic Analysis of Healthy Food Labels in Armenia" was selected as the best in the Agriculture category and won the Voskeni Wines Award for Agricultural Economics.

## Graduation and commencement ceremony 2018

he ICARE graduation ceremony honoring 29 Undergraduate Agribusiness and 17 Master of Agribusiness (MAB) students of ICARE/ATC, and 14 graduates of the EVN Wine Academy was held on June 5, 2018. Artur Khachatryan, the Minister of Agriculture for Armenia; Lyla Andrews Bashan, Director



of Sustainable Development Office - USAID/Armenia; John Nichols, the Chairman of ICARE and Professor Emeritus of Texas A&M University; and Linda Bitsch, Geisenheim University representative, were among the dignitaries who celebrated the ICARE students achievements. The graduates represented the 17<sup>th</sup> undergraduate, 7<sup>th</sup> graduate, and 3<sup>rd</sup> EVN Wine Academy classes.

"With the Ministry of Agriculture having started vital reforms in Armenia's agriculture, you, the ICARE graduates, are those professionals who will bear the responsibility for bringing agriculture to a technologically higher level," said Minister Khachatryan. Lyla Andrews Bashan, the Director of the USAID/Armenia's Sustainable

Development Office, warmly greeted the 2018 graduates: "I encourage you to take everything that you have learned at ICARE/ATC and combine that with the hope and engagement that Armenian citizens have brought to their government and continue to strive to create the best Armenia."

Each graduate was challenged by Dr. Nichols to identify opportunities and accept risks to develop a successful career. "There is no better time and few better places to meet this challenge than today in Armenia," he said. ICARE Director, Vardan Urutyan thanked USAID and other donors on behalf of the graduates and students,



saying that this world-class education would not be possible without the generous support from them. "We all look forward to seeing you in the forefront of the generation creating the New Armenia".





Arthur Grigorian

### ICARE has a new Director

he International Center for Agribusiness Research and Education (ICARE) is happy to announce that the ICARE Board of Trustees at a special session on September 1, 2018, appointed Arthur Grigorian as the Director of ICARE by a unanimous vote. Dr. Grigorian's appointment followed the resignation of the previous Director of ICARE, Dr. Vardan Urutyan. Arthur Grigorian is an alum of ICARE's Agribusiness Teaching Center. He was Development Director at ICARE prior to this appointment. The development and research projects initiated by Dr. Grigorian have enhanced recognition of ICARE as a regional agribusiness education and research center. One of Arthur's important initiatives was a series of meetings with ICARE alumni groups, which led to bolstering a new culture among graduates—a culture of giving to their alma

mater both in the form of sharing their professional experience with ICARE students and raising funds to help ICARE establish the new student lounge—Dream Lab. Arthur is a great friend of ICARE's partners in Armenia and abroad. He is loved and respected within the ICARE family for his intellectuality, generosity, and dedication. ICARE staff, students, and faculty are happy to see Arthur Grigorian as the successor of Dr. Daniel Dunn and Dr. Vardan Urutyan in ICARE's education, research and development programs and have no doubt that ICARE's journey, full of creative work and success, will continue under Dr. Grigorian's leadership.



#### Vardan Urutyan elected as the Rector of ANAU

he ANAU Board of Trustees by a secret ballot unanimously elected Vardan Urutyan as the Rector of the Armenian National Agrarian University. He has been Acting Rector of ANAU since July 31, 2018. Rector Vardan Urutyan is a graduate of the Armenian State University of Economics. He has PhD in Economics and is an Associate Professor at Texas A&M University. The election was preceded by the presentation of the "ANAU Reform and Development Program" by Dr. Urutyan. Congratulations to the students, faculty, staff of ANAU, and the entire agricultural community on this important moment. This election marks a new era in developing agrarian education in Armenia. There is no doubt we will have the "University of our Common Dreams" in a few years time.

### Greenhouse Crop Production and Management program



hen ICARE launched its pioneer Greenhouse Crop Production and Management (GCPM) program the number of applicants turned out to be several times larger than the program could really accommodate. As a result of competition, only 19 students were accepted into the program. The group

demonstrated a mature professional approach and quest for up-to-date knowledge. Local field professionals who conducted the Greenhouse Crop Production and Management program. Jan Van den Beuke, an expert from the Netherland's non-profit Programma Uitzending Managers, presented a lecture on "Chemical and Biological Protection of Plants; Examples from the Netherlands". He shared his twen-

ty years of experience with the program participants and also learned about plant protection practices used by Armenian greenhouses.



I am happy that I have had a chance to participate in the Greenhouse Crop Production and Management program which gave me new prospects for my professional development", says Astghik Karapetyan. "By the end of the program, I received serious professional knowledge and practical skills which I had a chance to apply during our field visits to greenhouses and in my professional work at the Armenian Institute of Hydroponic Problems. Through this program, I networked with industry leaders and received outstanding training opportunity at the Wageningen University and Research, and several job offers in this exciting field".



# Geographic Information Systems (GIS) and Remote Sensing (RS) certificate program

he GIS and Remote Sensing (RS) certificate program was launched on November 12, 2018, with 18 participants. The course introduced principles and techniques necessary for real-world application of issues in resource management. The course focused on theoretical and conceptual foundations of remote sensing, especially image interpretation, analysis, and processing for a variety of applications. As learning outcomes of the RS course, participants learned how to compare sensor characteristics and select appropriate sources of imagery and imagery characteristics for environmental analyses, understand principles of remote sensing and remote sensing imagery information, including scale, resolution, or the rectified imagery, and

the derivation of direct and indirect measurements from various types of imagery. The certificate program uses the industry standard software package ArcGIS. The software licenses for ArcGIS have been kindly provided to ICARE by Pakrad Sarkis Balabanian, a GIS Manager and Entrepreneur from the United Arab Emirates.

This certificate program was conducted jointly by the ICARE and the Department of Ecosystem Science and Management of Texas A&M University, and co-funded by the Private Sector Development and Technical Vocational Education and Training Programme South Caucasus (PSD TVET) implemented by GIZ-Armenia.





### Food Safety Systems Management program

By Zaruhi Danielyan,
ICARE student



afe food is a most important value in Armenia. ICARE has recently initiated a special innovative Food Safety Systems Management (FSSM) course teaching the basic concepts of Food Safety and managing a foodbased business or industry. During the four-week certifi-

cate program we have learned microbiological terms and types of bacteria. The course also covered sanitation measures necessary to ensure that facility surfaces and equipment come in contact with food is properly cleaned, sanitized and maintained. We also learned to detect allergens. The food labs were also "delicious" as we prepared dry beef jerky with the right content of salt, marinade, pH and other parameters. We experimented with delicious pizzas, salsa sauce, and strawberry jam, followed by sensory evaluation of all these products. A critical part of the FSSM program were visits to the Armenian food processing companies, including meat and dairy producers.



The FSSM program is funded by USAID/Armenia through the InnovATE/Armenia project, conducted jointly by Virginia Tech and Penn State Universities.



ZARUHI DAVTYAN:

Instructor, FSSM

#### I adore this class

■ I adore this class, I appreciate every single day of working with the students during class hours and lab tests, exams, and field trips. They strive to understand, analyze and evaluate the complex material. And they accomplish tasks with a cheerful spirit, all while demonstrating excellent time management skills. I believe the Food Safety

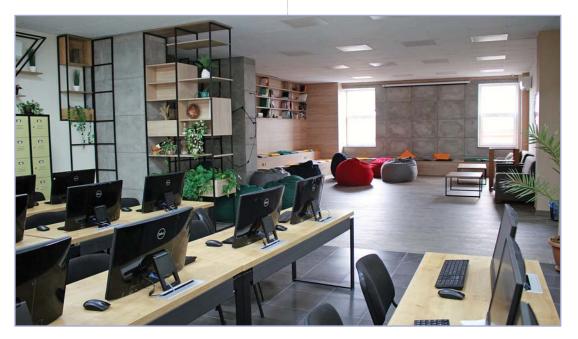
Systems Management program became one of the new and bright colors in the education and training spectrum of ICARE. The lectures and lab exercises covered six modules: Introduction to FSSM and Food Science, Sanitation, Food Microbiology, Better Process Control and Acidified Foods, HACCP, and Food Defense. I have also taught food science within the Agribusiness Case Studies course at ICARE. However, I feel compelled to point out that teaching FSSM courses was the best opportunity to gain a full insight into the ICARE lifestyle and become part of the ICARE family."

#### Our "Dream Lab"

By Hasmik Hayrapetyan,

ICARE, MAB student

is now my 4th year and I am studying at ICARE. During my first year here we had a computer lab but the computers were very old. We continued to use outdated computers for group projects but in my 2nd and 3rd years of studies we used the lab computers less and less because their processing power was not great enough.



In September 2018, we got a big surprise. A new computer lab, equipped with new generation computers was established at ICARE. The renovated student lounge was named a Dream Lab. The opening ceremony drew ICARE alumni, students, faculty, and representatives of Cronimet Charity Foundation which helped fund the Dream Lab, as well as agriculture sector partners and stakeholders.



Now we never miss an opportunity to hold our classes in the computer lab. Now lecturers are free to assign complicated tasks during classes which require intensive software usage. Our Dream Lab has a lounge section for informal group projects and discussions.

The Dream Lab was made possible through a fundraising campaign among our alumni, ICARE Board, faculty, and staff. We are honored to be part of the generation that has the opportunity to use such an advanced and comfortable lab. We also appreciate the contribution made by Cronimet Charity Foundation for making the Dream Lab a reality.

### I became a part of the ICARE family

By Ella Aghababyan,

ICARE student

first learned about ICARE when I came to participate in the "Application of Econometric Models Using STATA for Addressing Economic Questions" training. The training conducted by Dr. Rafael Bakhtavoryan, made me realize the power of up-to-date knowledge. and the high qualifications of ICARE instructors.

The ICARE instructors had high expectations for excellence and a positive encouraging attitude toward each student. The Master of Agribusiness (MAB) program gave me opportunities to apply my knowledge, building upon my bachelor's degree from the Armenian State University of Economics.



My education at ICARE prepared me for challenges of the national and international professional job market. ICARE opens up students' eyes to international developments and exposes them to critical thinking and analysis. From my point of view, the resources and the learning environment at ICARE are dedicated to developing a "complete" student, who is intellectually savvy, socially alert, and globally aware. My learner-centered MAB program at ICARE had a positive impact on my personal and academic development.



#### Internship at Tufekian Foundation in Artsakh

By Ararat Sahakyan, ICARE student

#### two-month summer internship was at the Tufenkian Foundation in Artsakh. The Tufenkian Foundation was launched in 1999 to address the most pressing social, economic, cultural and environmental challenges facing Armenia.

plan for the beeswax sheet production factory.

This internship gave me the opportunity to get acquainted with agribusiness. While doing my projects at the Tufenkian Foundation I developed my skills in business analysis in a sphere that was new for me. This internship was very productive and helped me with the selection of my future career path. I would like to express my gratitude to ICARE and the Tufenkian Foundation for this opportunity.

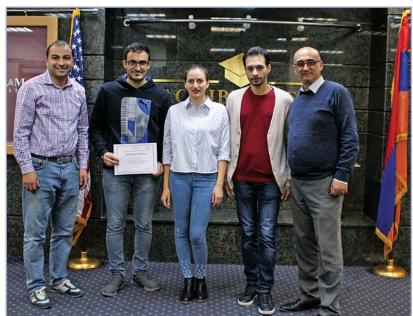
#### Most of our time was dedicated to a beeswax sheet production project. The project had originally been launched without benefit of preliminary research, business plan, or an action plan. This resulted in losses from purchasing equipment that could not be used. Our mission was to develop a database of suppliers of boxes for beeswax sheet distribution, suppliers of beeswax, as well as the consumers of beeswax sheets. The final product included a detailed marketing and promotion

### Geisenheim University delegates at **ICARE**

's EVN Wine Academy was honored to host a group of 25 delegates consisting of students and alumni from Geisenheim University, led by Prof. Dr. Jon Hanf. The alumni were mainly the members of the



German Wine Makers' Association. Dr. Vardan Urutyan, the Rector of Agrarian University, Aram Babayan, Senior Expert from GIZ Armenia, and EVN Wine Academy instructors gave presentations, introducing their German colleagues to the history of Armenian winemaking and current industry developments. Presenters also stressed the significance of the EVN Wine Academy, Vine and Wine Foundation of Armenia, and the Armenian Young Winemakers Union in Armenia's modern wine industry.





### My internship at ICARE

By Kimberley Daw,
ICARE Intern, United States

6-week internship at ICARE was organized and supported by the American Councils for International Education: ACTR/ACCELS office in Armenia. I remember my very first day at ICARE consisting of numerous introductions and a tour around the office. It was impressive to learn about all of the different operations that the ICARE staff manage. My initial duties consisted of editing various documents and creating a database of Armenian news outlets. Our goal was to reach out to these outlets hoping they would expand our efforts by sharing articles about ICARE's work with their own audiences. Since many academic programs in this institution are open to international students, we thought this would be prudent to increase ICARE's visibility. I also interviewed students who

are currently enrolled in academic programs in both undergraduate and master's programs, as well as in the EVN Wine Academy. One interviewee told me she learned about the EVN Wine Academy through an advertisement for the Enology and Wine Business program on social media. Prior to this, she had been employed at a construction company. She plans on using her EVN Wine Academy education to jumpstart her career.

A common theme among students I interviewed was the high quality of ICARE programs. Students mentioned that ICARE's programs were the best in Armenia! Without a doubt, I finished my internship at ICARE with a great deal of additional knowledge and skills.



## EVN Wine Academy has a new winery...

#### By Syuzanna Mosikyan,

EVN Wine Academy 2<sup>nd</sup> year student

fter spending internships in wineries both in Armenia and Germany I am convinced that practical experience has a huge impact on a student's growth as a winemaker. Undoubtedly, theoretical studies and research are very important in winemaking but it is essential to produce a few vintages. The newly opened practical center in Voskehat village, Armavir region is the desired linkage between theory and practice. Students



now have a unique opportunity to combine their theoretical knowledge with practical experience and to perform research. Students have the opportunity to work with some of the industry's most innovative grape-growing practices and winemaking technologies, while learning



wine production. Students now can work cross-functionally: to support research and to develop their skills while working with professional winemakers to understand the intricacies of winemaking. I worked as an assistant winemaker, which for me is a great step toward becoming a winemaker. We—the students of EVN Wine Academy—can now experiment with various grape varieties, yeasts, and production methods. This is a truly invaluable experience! This practical center was established through the cooperation between ICARE and ANAU, with technical and financial support from GIZ-Armenia's Private Sector Development and Technical Vocational Education and Training South Caucasus program.

### ... and students will produce their own wine!

By Isabelle Rüttiger,

CIM Expert at EVN Wine Academy

ur practical center for EVN Wine Academy students is a small facility in Voskehat village that gives students the opportunity to apply their practical skills in winemaking at this experimental cellar, our students have already created three different wines from





Areni and Voskehat grapes. The first wine is "Blanc de Noir", with juice from red Areni grapes, very light in color and delicate in aromatic profile. The second is Rosé, made by extracting juice from the mashed Areni grapes after a macerating time of around 12 hours. This method increases the color and body of the Rosé and helps to get more color extracted for the red wine. We have also made white wine from Voskehat grapes, which we have split into two parts, each fermented with a different yeast strain. In order to discover the influence of various woods on our red, dense and relatively dark Areni, we have put it into two different barrels made from French and Armenian oaks.

We are planning to have our student wines from the first vintage by May, 2019 and, we will serve samples during the Yerevan Wine Days.

### EVN hosted the "Steve Jobs" of wine

he legendary Paul Hobbs visited EVN Wine Academy to meet the next generation of Armenian winemakers. He is considered to be the "Steve Jobs of Winemaking" (Forbes, 2013). Mr. Hobbs was surprised to learn about EVN Wine Academy—a modern winemaking school in Armenia. He especially liked the idea of establishing an experimental winery for the EVN students which will help them gain hands-on experience in winemaking, and have the freedom to experiment.



## ICARE changed my life and my business

By Ruzanna Kartashyan,

ICARE graduate 2017

he Master's program gave me the latest knowledge in finance, marketing, and project management and the professional confidence to make a



business forecast for my small herbal tea business. It opened a new world for me—the world of numbers, planning, and management, something that I had not really considered when I first opened my small business. Every single course taught in the Master's program contributed to holistic and competitive education and changed my life and my business.

### International experts judging Armenian wines

his was the second year that the International Wine Contest was held in Armenia. One of the most important events in the Armenian wine world became a tradition that involves world-class international wine judging. The contest is competitive with an international panel of judges providing unbiased results. Armenian wines were evaluated during the Areni Wine Festival in October 2018. EVN's modern wine sensory lab room was the venue for this event. The judges did a great job as they tasted and evaluated red, white, sparkling and rosé Armenian wines. They spent two long



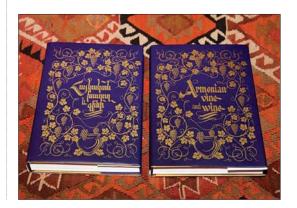


days in the tasting room judging 55 wines from 17 Armenian winemaking companies. The tasting was "blind" meaning each labeled bottle was covered. This prevented the judges from being influenced by any particular wine or vintner. Two wines won Grand Gold and a number of wines received gold and silver medals. This is also a good opportunity to better position the Armenian wines in the global market, giving our wines a more visible presence in the world wine market.

The International Wine Contest was organized and hosted by the ICARE/EVN Wine Academy, with support from our partners—GIZ-Armenia, Vine and Wine Foundation of Armenia, and the Areni Fest Foundation.

### Armenian Vine and Wine book

Armenian Vine and Wine is more than just a book. It is a text with attractive illustrations. The authors have valued anew the history, tradition and social context of Armenia's viticulture and winemaking. It describes trends and goals, laying the groundwork for the renaissance of Armenian wine. The authors deserve many thanks for this achievement, together with GIZ-Armenia which sponsored the production of this book. The book will be in demand among a wide range of stakeholders and readers-at-large both in Armenia and the Diaspora. Income generated from book sales will be allocated to support education and research activities in the field of vine and wine in Armenia.



# EVN is developing a wine tasting culture in Armenia

he EVN Wine Academy's Enology and Wine Business program teaches students to create and promote high-quality Armenian wines. Meanwhile, the Wine Fundamentals short course teaches wine enthusiasts to find and recognize wine on the shelf that is worth buying.



Professionals and entrepreneurs in the wine, food, and hospitality fields, wine enthusiasts attend this short course at ICARE / EVN Wine Academy to quickly expand their knowledge of wine topics. This short masterclass is structured as a practical introduction to the exciting and ever-evolving world of wine, designed specifically for people who enjoy wine and would like to learn more. The two-day course provides general information on the history and fundamentals of winemaking, grape varieties, food and wine pairing and proper wine storage and wine tasting techniques. Participants also learn about the history and tradition of winemaking in Armenia. The course includes such topics as understanding wine labels, quality designations, wine service and the latest trends in food & wine pairing demonstrations.

This incredibly fun educational experience helps attendees discover new wines and understand the differences created by grape varieties. The course has an applied flexible approach and is taught by highly experienced wine professionals in three languages.



### Thank you, my ICARE team!

By Syuzanne Fischer,

ICARE intern

arrived in Armenia from France—my native country in September. I came to do an internship to earn my master's degree in Global Business Management in



the Edhec Business School in France. I was assigned to work on the project named Sustainable Fisheries to Enhance Water Resources in Armenia. The project area is the Ararat Valley and aims to improve the efficiency of recirculation water systems in fisheries. I had the opportunity to visit fisheries to invite farmers to participate in an innovation contest. This immersion in fisheries permitted me to have a better understanding of the fish production processes. Interfacing with farmers in Armenia also provided me with an understanding of the Armenian rural way of life and culture. I also participated in the development of a European Fund proposal to expand the water quality work.

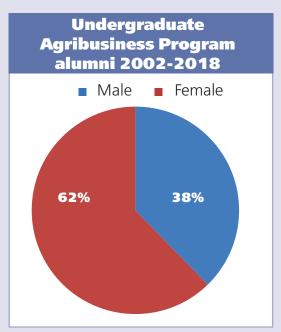
From a personal point of view, I feel truly lucky to have been involved with ICARE's research team. They contributed to my professional field research skills development—a key to success in developing agricultural management improvements in Armenia.

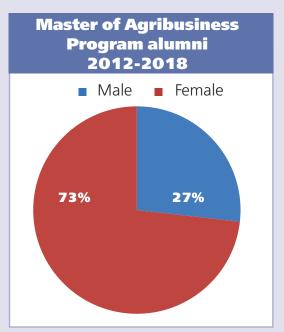
# New "Wine Weeks in Armenia" Summer School program

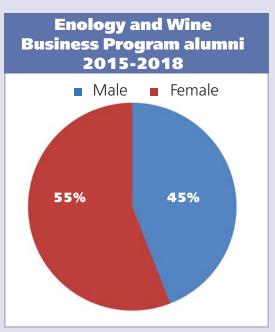
he Wine Weeks in Armenia summer school program at EVN Wine Academy will start in the summer of 2019. This is a unique academic and cultural program with an exclusive opportunity to experience the historic world of Armenian wine. Winemaking started in Armenia at least 6,100 years ago and the country is now experiencing a renaissance.

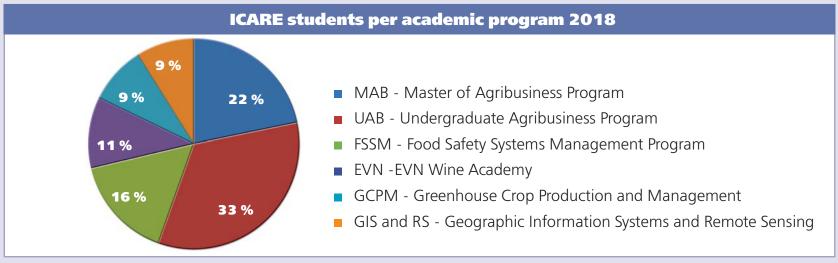
The first session of this summer school program will be conducted from July15-July 30, 2019. The Wine Weeks in Armenia is a two-week program and includes a wine business course providing a broad view of the global wine market, two short wine masterclasses covering history, traditions, and modern trends of Armenian wines and winemaking and three day-trips along the main wine routes of Armenia. A traditional Armenian dining experience is included in each trip. This certificate program is open to both international and local applicants. For more information visit www.icare.am/evn/summerschool.

#### Gender ratio of ICARE graduates

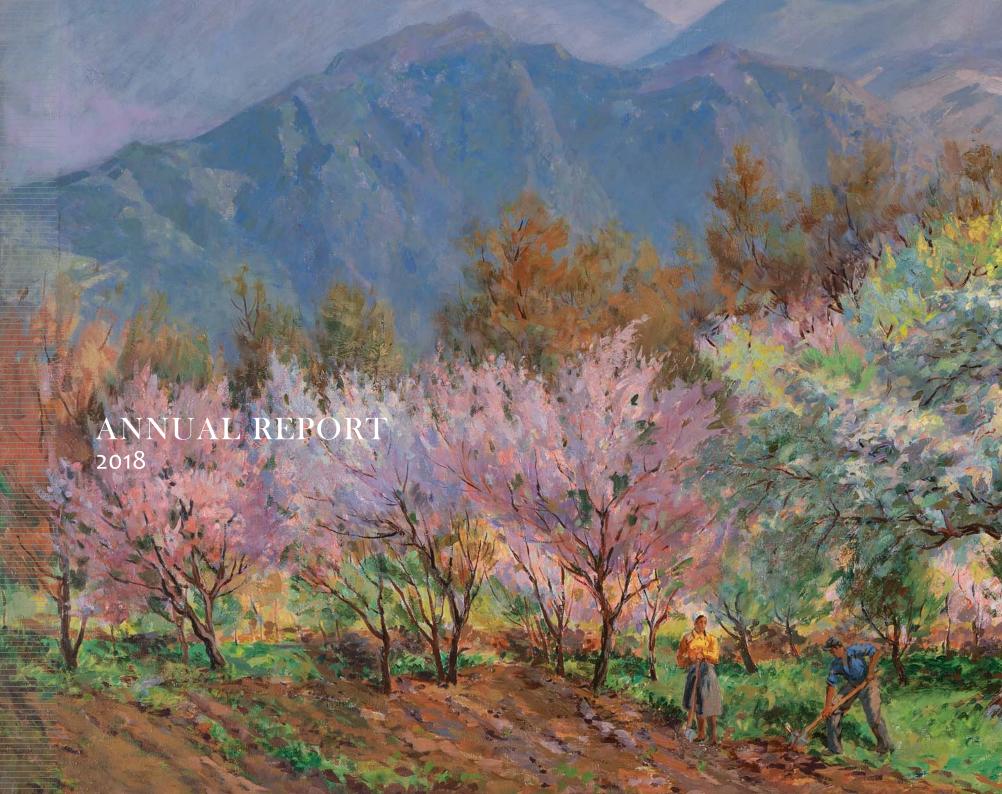


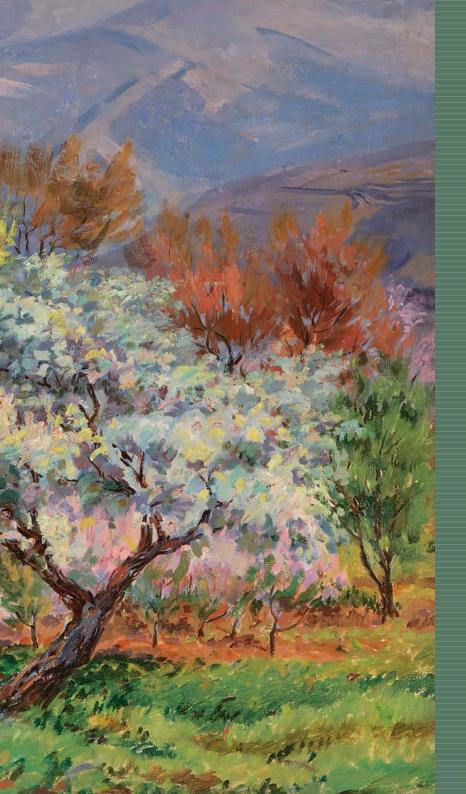






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### Research & Outreach



# ICARE assists in development of organic agriculture curriculum

rganic agriculture is a priority under Armenia's "2010-2020 Sustainable Strategy Program for Agricultural and Rural Development" program. ICARE is collaborating with the University of Natural Resources and Life Science, Vienna (BOKU) to launch an Organic Agriculture Master's program at the Armenian National Agrarian University (ANAU) in the next academic year. One of the core of the project is a participatory approach to the Organic Agriculture Master's curriculum development and the involvement of stakeholders. ANAU is becoming a



regional agrarian university with competitive curricula under the leadership of Rector Dr. Vardan Urutyan. This innovative program will play a key role when launched at ANAU in 2020. Teaching organic farming in Armenia will help students gain contemporary knowledge and skills in organic farming practices. The master's curriculum will prepare each graduate for competing in the workforce.

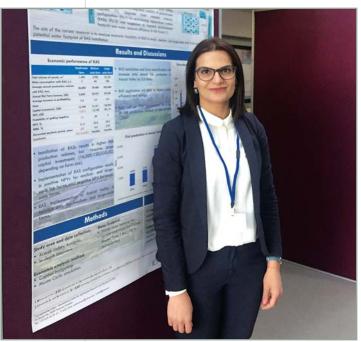
The Building Organic Agriculture in Armenia (BOAA) project is funded by the Austrian Partnership Programme in Higher Education. ANAU is the partner university in Armenia.



# ICARE contributes to development of water-intensive aquaculture sector

Inder the USAID Partnerships for Enhanced Engagement in Research (PEER), ICARE's research team completed the 3-year Sustainable Fisheries for Enhanced Water Resources in Armenia (SFEWRA) project. The main objective is to address the issues of depleting artesian water resources in the Ararat Valley and develop water-efficient reuse approaches for small and medium fish farms.

The year 2018 was arguably the most labor-intensive one for the SFEWRA project. Throughout the year team



members collaborated with 15 fisheries with project experts providing consultancy to fish farmers. Together with the farmers, the team regularly brainstormed on possible efficient water reuse models, including aquaponics to ensure that these models would be adaptable on a given farm. Data collected on each of the farms provided the basis for customizing water-efficient models which were designed and implemented on beneficiary fish farms. Business plans included knowledge about environmentally friendly practices such as Recirculation Aquaculture Systems (RAS), optimal volumes of fish stock, possible necessary investments and cost-benefit analysis. SFEWRA team members shared the research results with ICARE students and other stakeholders in targeted communities.

Throughout the year, the SFEWRA team was also busy implementing an "Evidence-to-Action" supplemental grant on one of the project fish farms. Thanks to this grant the fish farm switched from conventional production to water-intensive recirculation aquaculture. It is now equipped with components such as water treatment, aeration and degassing, nitrogen management units (mechanical and biological filtration of effluent water), and most importantly aquaponics. This system will not only enhance the economic and environmental sustainability of the fish farm but also serve as a demonstration center for other fish farms in the Ararat Valley region and beyond.

# ICARE initiates agricultural statistics data collection mechanism in NSC

he quality of agricultural statistics data has a direct impact on the policies of a country, the incomes offarmers and the reliability of the results of agricultural research. Armenia is one of 10 countries selected to become part of the first phase of an AGRIS (Agricultural Integrated Surveys) project. The Food and



Agriculture Organization of the United Nation's 3-year AGRIS project is providing technical assistance to the National Statistical Committee (NSC) to establish a data collection system based on the FAO methodology and is aimed at improving the quality of agricultural survey data. ICARE is a key partner with FAO and the NSC of Armenia in this new and important initiative funded by the Bill & Melinda Gates Foundation. In the beginning stages of the project ICARE researchers will help NSC and AGRIS team to develop quarterly and annual questionnaires and train statisticians from Armenian regions. The sampling will be based on the production and economic modules of a generic survey developed by FAO.

### Our research team enhances the Armenian dairy value chain

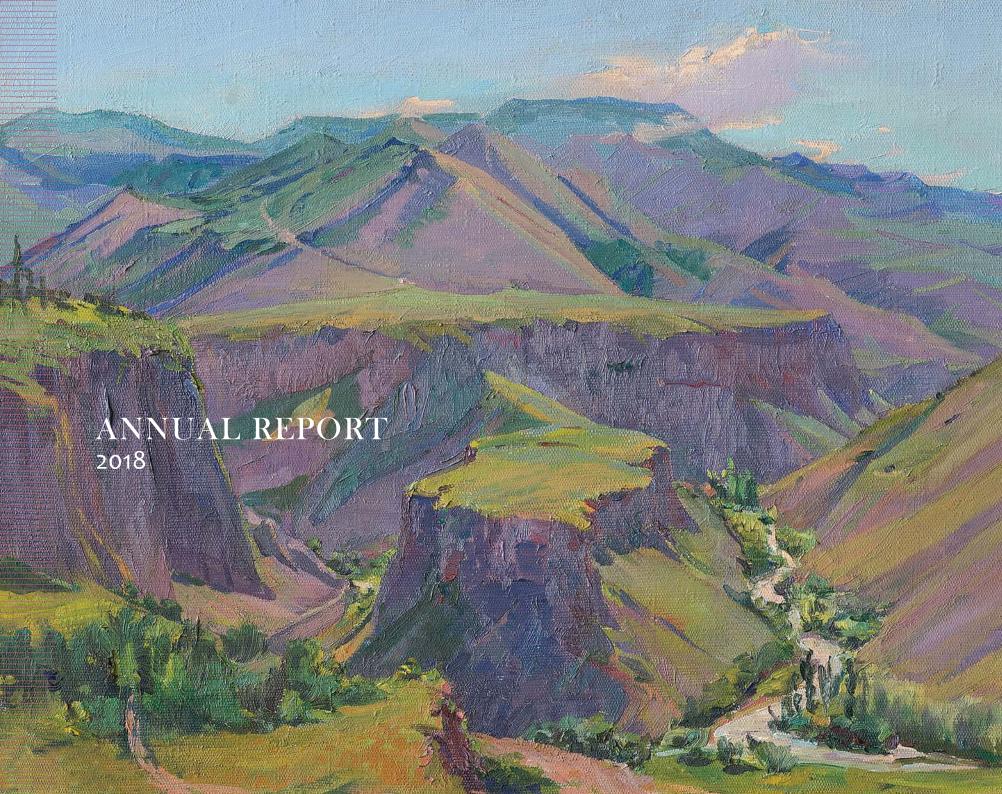
he results of a comprehensive study of the dairy value chain conducted by researchers from CARD and ICARE under the auspices of the Food and

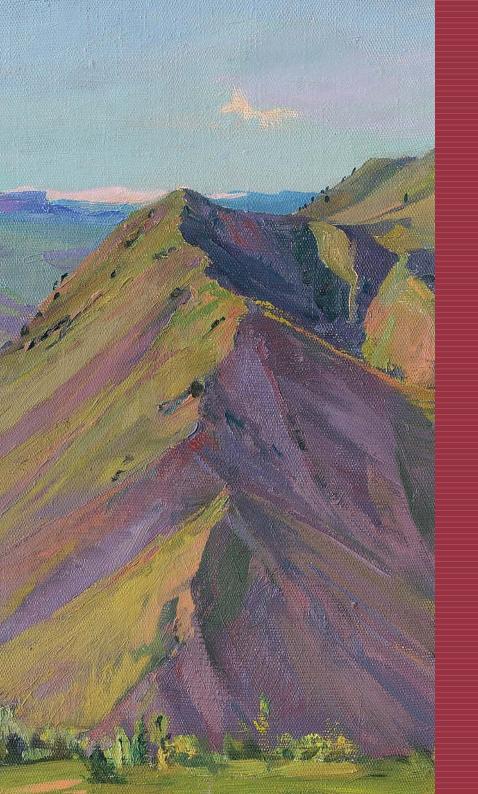


Agriculture Organization of the United Nations (FAO) were reported and discussed at a stakeholder workshop in March 2019. Main factors influencing the milk yield of dairy cows were addressed including the situation of the dairy processing industry, consumer preferences and the international market potential of Armenian dairy products. An investment roadmap needed for improving the dairy value chain was delivered.

This study revealed the lack of sufficient quality feed which could improve the milk production and contribute to overall socioeconomic development in Armenia. Other critical issues are feeding, management, and production practices which require external technical assistance.

The study was launched in April 2018 as a part of the FAO project aimed at making substantial improvements to the dairy operations in Armenia by enhancing the productivity of the dairy sector via improved feed resources and better-targeted investments. The ICARE research team implemented the dairy processor and consumer study, resulting in interesting and important results for the value chain. The study was conducted in four major cities of Armenia and involved a total of 400 households. An analysis of consumer preferences was made based on the data from 20 dairy processing companies. In addition, our research team estimated milk yield economic modeling, which revealed significant factors influencing milk productivity. The ICARE research team's efforts led to the development of dairy value chain investment roadmap to be used by FAO and the Armenian Government for further improvement in the sector.



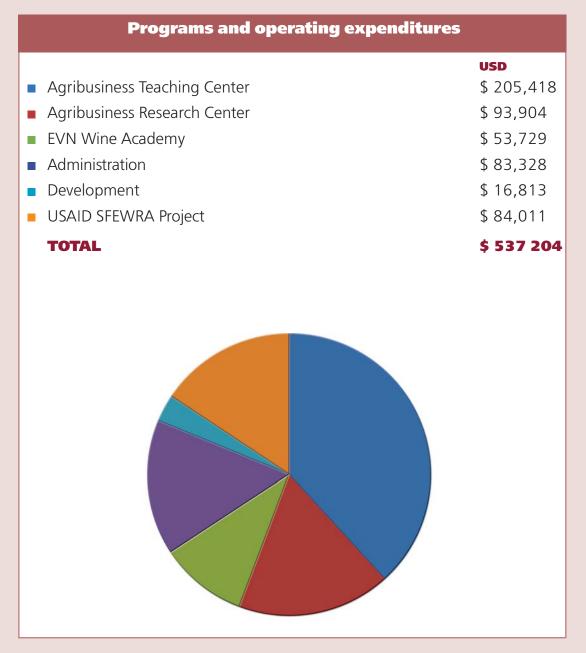


### Financial Highlights



2018
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Highlights







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