

2020 R & E ANNUAL REPORT

I. RESEARCH

A. COMPLETED RESEARCHES

A total of sixty four (64) research studies were completed for the year 2020.

Table 1. Completed Researches

Office	Studies Completed
HERRC	20
HORTI	3
IHFSA	3
GeoInformatics	3
ISRD	15
CSAC	4
NPRCRTC	11
CAS	4
CCARD	1

B. PUBLICATIONS

Twenty-one (21) research articles were published in international peer reviewed refereed journals and 23 published in national refereed journal as follows:

Table 2. Research Articles Published in Refereed Journals

	Title of Article	Author(s)	Name of Journal / Book
1	Morpho-anatomical characterization of <i>Rhododendron subsessile</i> Rendle, an endangered species of the Cordillera Central Range, Philippines	Mabel Grace V. Bitayan, Starleeñe S. Cervantes, Jones T. Napaldet	Journal of Forestry Research
2	Confirmed record of <i>Spongospora subterranea</i> subsp. <i>subterranea</i> in potato cv. Igorota in Northern Philippines and the susceptibility of tomato cv. Yellow plum to <i>Spongospora</i> root infection	Teresita Masangcay, Mark Angelo Balendres	Archives of Phytopathology and Plant Protection
3	Absorption of Lead and Mercury in Dominant Aquatic Macrophytes of Balili Riverv and its Implications to Phytoremediation of Water Bodies	Jones T. Napaldet, Inocencio E. Buot Jr.	Tropical Life Sciences Research
4	Adoption and economic analysis of using biological control in Philippine highland farms: Case of <i>Trichoderma koningii</i> strain KA	Cheryll C.Launio, Kacy O.Labon, Alladin M.Bañez, Ruth S.Batani	Crop Protection

	Title of Article	Author(s)	Name of Journal / Book
5	Nonlinear Height-DBH Model Analysis For Three Tropical Tree Species In Mt. Makiling, Philippines	Nova D. Doyog, Roscinto Ian C Lumbres, Feliciano G. Calora Jr., Nelson M. Pampolina, Michelle D. Gamboa, Dante S. Chichioco, Young Jin Lee	Journal of Sustainable Forestry
6	Awareness and Compliance on Waste Segregation: Implication to a Waste Management Program in a University	Bretel B. Dolipas, Jennifer Lyn S. Ramos, Monica S. Alimondo, Phil S. Ocampo, Danni Loven A. Fulwani	Athens Journal of Sciences
7	Ecological services of agroforestry systems in selected upland farming communities in the Philippines	Romnick S. Baliton, Leila D. Landicho, Rowena Esperanza D. Cabahug, Roselyn F. Paelmo, Kenneth A. Laruan, Ramil S. Rodriguez, Roberto G. Visco, Arnold Karl A. Castillo	BIODIVERSITAS
8	Identification of quantitative trait loci underlying resistance and tolerance to the rice root-knot nematode, <i>Meloidogyne graminicola</i> , in Asian rice (<i>Oryza sativa</i>)	Judith Galeng-Lawilao, B. P. Mallikarjuna Swamy, Tapas Kumer Hore, Arvind Kumar, Dirk De Waele	Molecular Breeding
9	Chemical Wastes Management in Stem Academic Laboratories of Baguio City, Philippines: Challenges and intervention scheme	Francisco L. Soriano, Luisita L. Ely	International Journal of Environment, Ecology, Family and Urban Studies (IJEEFUS)
10	Climate Change Trends, Impacts and Adaptation of Upland Farmers in La Trinidad, Benguet, Philippines	Gerry P. Alfonso, Kenneth A. Laruan	International Journal of Agronomy and Agricultural Research
11	Distribution and morpho-anatomical characterization of 'Beket' (<i>Coriaria japonica</i> subsp. <i>intermedia</i> (Matsum) T. C. Huanh) in Cordillera Central Range, Northern Philippines	Maricel A. Guron, Jones T. Napaldet	Journal of Mountain Science
12	Estimation of Basic Wood Density and its Uncertainty for <i>Quercus</i> Species in South Korea	Jung Kee Pyo, Roscinto Ian Lumbres, Yeong Mo Son, Kyeong Hak Lee, Young Jin Lee	Journal of Environmental Science and Management
13	Crown Fuel Characteristics and Allometric Equations of <i>Pinus densiflora</i> in Gyeongbuk Province, Korea	Sung Yong Kim, Roscinto Ian Lumbres, Yeon Ok Seo, Mina Jang, Sun Joo Lee, Byungdoo Lee, Young Jin Lee	Journal of Environmental Science and Management
14	Growth Improvement of 'Grand Rapids' Lettuce using Protected Cultivation under Chilling Conditions in Benguet, Philippines	Darwin A. Basquial, Constancio C. De Guzman	The Thailand Natural History Museum Journal 14(1) 73-83

	Title of Article	Author(s)	Name of Journal / Book
15	Geomorphometric Characterization and Analysis of the Bued Watershed Using Advanced Spaceborne Thermal Emission and Reflection Radiometer - Global Digital Elevation Model V3 through Geospatial Techniques	Bernard Peter O. Daipan	Philippine Journal of Science 149 (3-a): 955-967,ISSN 0031-7683
16	Lead and Mercury Uptake in Dominant Macrophytes of Balili River, Benguet, Philippines	Jones T. Napaldet, Inocencio Buot, Jr.	Journal of Wetlands Biodiversity
17	Vascular Plant Diversity in Benguet State University La Trinidad, Main campus, Philippines: A Status Report and a Database To Support The Attainment of Sustainable Development	Jhunedyn M. Antonio, Margarete M. Bacate, Jackson L. Butag, Sheinalene M. Ladoan, Gina D. Vicente, Jones T. Napaldet	Journal of Wetlands Biodiversity
18	Predicting success in teacher education: Revisiting the influence of high school GPA, admission, and standardized test scores on academic and licensure performance	Apler J. Bansiong, Janet Lynn M. Balagtey	Journal of Research, Policy & Practice of Teacher and Teacher Education
19	Rehabilitation of Eutrophic Rivers Through Phytoremediation in Constructed Wetland: The Case of Balili River in Benguet, Philippines	Jones T. Napaldet, Inocencio Buot, Jr.	Methodologies Supportive of Sustainable Development in Agriculture and Natural Resources Management: Selected Cases in Southeast Asia (Chapter 12: pp.203-230)
20	Spatial and Productivity Measurements in Traditional Rice-based Ecosystems in Highland Cordillera (Chapter 2) SEARCA, College Laguna	Romeo A. Gomez Jr.	Methodologies Supportive of Sustainable Development in Agriculture and Natural Resources Management:Selected Cases in Southeast Asia (Chapter 2 pp 11-22)
21	Adoption of Root crop- and Fruit-Based Processing Technologies	Esther T. Botangen, Hilda L. Quindara, Joyce K. Mama-o	Mountain Journal Science Interdisciplinary Research (MJSIR)
22	Status of Introduced Potato Varieties in Benguet and Mountain Province, Philippines	Cynthia G. Kiswa, Gabby K. Dao-ines, Betty T. Gayao	Mountain Journal Science Interdisciplinary Research (MJSIR)
23	Gender Roles in Root and Tuber Crops Production in Northern Philippines	Dalen T. Meldoz, Betty T. Gayao, Grace S. Backian	Mountain Journal Science Interdisciplinary Research (MJSIR)

	Title of Article	Author(s)	Name of Journal / Book
24	Informal Seed System on Greater Yam (<i>Dioscorea Alata</i>): Knowledge and Practices among Indigenous People in Northern Philippines	Grace S. Backian, Betty T. Gayao, Dalen T. Meldoz	Mountain Journal Science Interdisciplinary Research (MJSIR)
25	Need-Based and Participatory Approach to Extension: Case of Addressing Sweetpotato Fusarium Wilt in Kayapa, Nueva Vizcaya	Grace S. Backian, Dalen T. Meldoz, Teresita D. Masangcay Cynthia G. Kiswa	Mountain Journal Science Interdisciplinary Research (MJSIR)
26	Teachers' Preparedness for Inclusive Education	Leonila R. Sito	Mountain Journal Science Interdisciplinary Research (MJSIR)
27	Information and Communication Technology (ICT) Through PowerPoint Presentation: A Tool in Enhancing Teaching-Learning Process	Bretel B. Dolipas, Freda Kate D. Samuel, Kenneth B. Pakipac	Mountain Journal Science Interdisciplinary Research (MJSIR)
28	Knowledge Construction Schemata of Teachers in Solving Real World Non-Routine Problem Situation: Their Implications to Mathematics Education	Serano L. Oryan	Mountain Journal Science Interdisciplinary Research (MJSIR)
29	Readiness of Preservice Teachers in the 21st Century Teaching Environment	Imelda G. Parcasio	Mountain Journal Science Interdisciplinary Research (MJSIR)
30	Teaching Practices for Children with Autism (CWA) at Baguio SPED Center	Dante M. Miguel	Mountain Journal Science Interdisciplinary Research (MJSIR)
31	Performance of Orange-Fleshed Sweetpotato Varieties in Three Agroecological Conditions in Cordillera Administrative Region, Philippines	Hilda Quindara, Isidro Awal, Roger Gayumba, Belinda Tadawan	Mountain Journal Science Interdisciplinary Research (MJSIR)
32	Motivation toward teaching and employment profile of the Bachelor of Secondary Education Graduates of Benguet State University	Apler Bansiong, Jingle Cuevas, Dolores Alawas	Mountain Journal Science Interdisciplinary Research (MJSIR)
33	Benguet State University High School Students' Curiosity, Interest, and Perceptions on Interactive Manipulatives in Mathematics	Joel V. Lubrica, Serano L. Oryan, Monica S. Alimondo, Julie A. Buasen Bretel B. Dolipas, Phil S. Ocampo.	Mountain Journal Science Interdisciplinary Research (MJSIR)

	Title of Article	Author(s)	Name of Journal / Book
34	Growing Arabica Coffee in the Mountain: Evolving Production and Marketing Practices in Benguet and Mountain Province	Ruth S. Batani, Beverly C. Sa-ao, Kristerlyne S. Manao, Mary An J. Altaki Joel C. Faroden, Gretchen Shagami M. Hudson, Darlyn D. Tagarino	Mountain Journal Science Interdisciplinary Research (MJSIR)
35	Competency Appraisal as A Tool in Improving the Board Exam Performance of Benguet State University Bachelor of Science in Forestry Graduates	Marissa R. Parao, Elvira Besiic, Bernard Peter Daipan, Nover Matso, Marycel Sajise	Mountain Journal Science Interdisciplinary Research (MJSIR)
36	Effects of the Different Postharvest Processing Methods on the Occurrence of Ochratoxin A and Cupping Quality of Arabica Coffee	Andres A. Basalong, Von A. Amado, Margelyn Pasigon, Hazen Lyn Talbini	Mountain Journal Science Interdisciplinary Research (MJSIR)
37	Germplasm Collection and Varietal Evaluation of Heirloom Rice in Benguet	Belinda A. Tad-awan, Hector Gayomba, Teresita Masangcay, Jasmin Chomawat, Wilner Mauting	Mountain Journal Science Interdisciplinary Research (MJSIR)
38	Utilization of Orange-fleshed Sweetpotatoes to Enhance the B-Carotene Content of Locally Consumed Food Products	Hilda Quindara, Ines Gonzales, Esther T. Botangen, Belinda A. Tad-awan	Mountain Journal Science Interdisciplinary Research (MJSIR)
39	Efficacy of Fermented Garlic and Vinegar-Based Biopesticide for Fusarium (<i>Fusarium oxysporum</i> f. sp. batatas) Wilt Management in Sweetpotato	Teresita D. Masangcay, Jophr. L. Galian	Mountain Journal Science Interdisciplinary Research (MJSIR)
40	Traditional Food Preparation Practices for Roots and Tubers among Indigenous Peoples in Northern Philippines	Dalen Meldoz et al.	Mountain Journal Science Interdisciplinary Research (MJSIR)
41	The News Shapes Our Views: Media Exposure and Attitudes Towards Drug Addicts	Karyll Ngina, Francis Simonh Bries, Joan Bonsol Marasigan	Mountain Journal Science Interdisciplinary Research (MJSIR)
42	The Integration of Indigenous Knowledge Systems (IKS) in The Tertiary Level Curriculum of Benguet State University La Trinidad Campus	Gigy Guma-ad Banes, Kristine Baniqued-Dela Cruz	Mountain Journal Science Interdisciplinary Research (MJSIR)
43	Perceptions and Political Participation of BSU Students	Ma. Theresa Dolipas	Mountain Journal Science Interdisciplinary Research (MJSIR)

C. RESEARCH PAPER PRESENTATION

A total of 109 research papers were presented by BSU researchers in international, national, regional and local/institutional conferences.

Table 3. Paper Presentation

Paper Presentation in the ff. fora:	No. of Papers Presented
International	4
National	1
Regional	10
Local / Institutional (AIHR)	94
Total	109

The R & E sector conducted the Annual Agency In-House Review on September 16-18, 2020, at the Research and Extension Building. A total of 94 research papers were presented with 46 completed and 48 ongoing. The distribution per theme is as follows:

Table 4. BSU Agency In-House Review

COMPLETED

Theme	Outside Funded	BSU Funded	Total
S&T AANR	4	9	13
S&T FIEET	1	4	5
Social AANR	4	1	5
Sociocultural/Socioeconomics		11	11
Development/Extension	2		2
Education		10	10
Total	11	35	46

ONGOING

Theme	Outside Funded	BSU Funded	Total
S&T AANR	13	23	36
S&T FIEET	1	1	2
Social AANR	1		1
Sociocultural/Socioeconomics	1	3	4
Development/Extension	3		3
Education		2	2
Total	19	29	48

D. AWARDS/ RECOGNITIONS

The following shows the awards and recognitions received by BSU full time and faculty researchers in various research fora/ activities.

Table 5. AIHR Awards

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
Leoncia L. Tandang	2020 CSSP Honorary Fellow Award		November 11, 2020	Crop Science Society of the Philippines (CSSP)
Outside Funded / S&T AANR Category				
Sherlyn C. Tipayno Criselda S. Battad Amelia M. Kimeu Norbert Q. Angalan Jayson D. Komicho Alfonso O. Fagcayang Khyle W. Paltican	Best Paper	Project Title: Monitoring Microbes and Parasites of Public Health Importance in Lettuce and Strawberry Produced in Benguet Province Study 1: Farming Practices and Bio-physicochemical Assessment and Strawberry in Benguet Province	September 18, 2020	BSU
BSU Funded / S & T AANR Category				
Nordalyn Pedroche Socorro L. Rulloda	1 st Best Paper	Project Title: Potential of Entomopathogenic Nematodes and Microbial Antagonist Against Soil-borne Pathogens and Insects in Coffee Study 3. Evaluation of Entomopathogenic Nematodes (EPNs) against Major Insect Pests	September 18, 2020	BSU
Sherlyn C. Tipayno Christian Mark Guyo	2 nd Best Paper	Project Title: Bacterial Endophyte-Assisted Bioremediation of Pesticide Residues in Lettuce (<i>Lactuca sativa</i>) and Spinach (<i>Spinaca oleracea</i>) Crops Study 1: Isolation and Characterization of Pesticide Degrading Endophytes from Plants Growing in Persistent Organic Pollutant (POP) Pesticide-contaminated Agricultural Lands	September 18, 2020	BSU
Outside Funded / S&T FIEET Category				
Valentino L. Macanes	Best Paper	Program Title: R and D Program on Arabica Coffee in	September 18, 2020	BSU

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
Lesley Dale G. Umayat Elmer D.Pakipak Cole Jeran Malucay Jomar T. Tacio Mirafy G. Balang		the Cordillera Administrative Region (CAR) Project Title: Evaluation and Development of Best Practices for Rejuvenation, Postharvest Processing and Storage for Quality Coffee Production in Benguet and Mountain Province Study Title: Arabica Wine Technology Development from Postharvest Processing By-Products		
BSU Funded / S&T FIEET Category				
Andres A. Basalong Von Y. Amado Hazen Lynn B. Talbino	Best paper	Project Title: Impact of Post-Harvest Processing Methods on the Occurrence of Ochratoxin A and Cupping Quality of Arabica Coffee Study Title: Impact of Roast Levels on the Physical Properties, Microbial Contaminants and Cup Quality of Arabica Coffee	September 18, 2020	BSU
Outside Funded / SOCIAL AANR Category				
Grace S. Backian Betty T. Gayao Jophr L. Galian Ammie D. Ngao-toy	1 st Best Paper	Project Title: Root Crop Pests and Diseases Currently Affecting Livelihood and Income of Indigenous Growers in Benguet and Nueva Vizcaya Study 2. Taro Leaf Blight (Phytophthora colocasia), Taro Beetle and other Taro Insect Pests and Diseases affecting Farms of Indigenous Growers in Benguet and Nueva Viscaya, Philippines	September 18, 2020	BSU
Grace S. Backian, Betty T. Gayao, Jophr L. Galian, Ammie D. Ngao-toy	2 nd Best Paper	Project Title: Root Crop Pests and Diseases Currently Affecting Livelihood and Income of Indigenous Growers in Benguet and Nueva Vizcaya Study 3. Yam Anthracnose (Colletotrichum gloeosporioides) in Benguet	September 18, 2020	BSU

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
		and Nueva Vizcaya, Philippines		
Grace S. Backian Betty T. Gayao Jophr L. Galian Ammie D. Ngao-toy	3 rd Best Paper	Project Title: Root Crop Pests and Diseases Currently Affecting Livelihood and Income of Indigenous Growers in Benguet and Nueva Vizcaya Study 1. Sweet Potato Fusarium Wilt (<i>Fusarium oxysporum</i> f sp. batatas) and other Insect Pests and Diseases Affecting Farms of Indigenous Growers in Benguet and Nueva Viscaya	September 18, 2020	BSU
BSU Funded / Sociocultural / Socioeconomics Category				
Karryl Mae C. Ngina Editha A. Grande Liza Ngiao Joel V. Lubrica	1 st Best Paper	Program Title: #iGenHopeful: Exploring iGeneration Wellbeing and Development towards Responsive iGen programs Project Title 2: #iGenHopeful: Exploring iGeneration Mental Health Study Title: #iSADgen: Psychological Morbidities of the iGeneration Higher Education Students towards Policy Development	September 18, 2020	BSU
Karryl Mae C. Ngina	2 nd Best Paper	Program Title: #iGenHopeful: Exploring iGeneration Wellbeing and Development towards Responsive iGen programs Project 2 Title: #iGenHopeful: Exploring iGeneration Mental Health Study 2 Title: #iGenNarratives: A Life Narrative Approach in Exploring Mental Health Issues of the iGeneration Towards a Therapeutic Pedagogy	September 18, 2020	BSU
Outside Funded / Development /Extension Category				
Ruth S. Batani Carlito P. Laurean	Best Paper	Program Title: Disaster Risk Reduction of Climate Change	September 18, 2020	BSU

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
Teresita K. Mangili Jocelyn C. Perez Alexander W. Fagyan Cus M. Kilakil Laudemar L. Luis Craig P. Lucas Sheler D. Ramos		Impacts on Vulnerable Agricultural Farms in CAR Project Title: Disaster Risk Reduction of Climate Impacts on Vulnerable Terrace Farms in Benguet		
BSU Funded / Education Category				
Jhordan T. Cuilan Cynthia T. Lubiton Candace Grale B. Maclining	1 st Best Paper	Master of Arts in English as a Second Language Graduates' Employment Profile and Program Relevance: Bases for Quality Measures towards Curriculum Review and Enhancement	September 18, 2020	BSU
Leonila R. Sito	2 nd Best Paper	Assessment Practices in Higher Education Institutions in the Cordillera Administrative Region	September 18, 2020	BSU
Ruth S. Batani	Outstanding Alumni on Social Research & Extension (104 th Foundation Anniversary PRAISE Everlasting Awards 2020)	"Education, Propagation and Conservation of Traditional Food Crops as Embodiment of Indigenous Knowledge in Palina, Kibungan: An Extension" (ATI-DA)	September 23, 2020	BSU
Jovita M. Sim	3 rd Best Poster (104 th Foundation Anniversary PRAISE Everlasting Awards 2020)	"Awareness of Consumers on the First, Second, and Third Degree Certification of Organic Products" (Social-ANNR category)	September 23, 2020	BSU
Ruth S. Batani Romeo A. Gomez Jr. Cheryll C. Launio	2 nd Best Paper (104 th Foundation Anniversary PRAISE Everlasting Awards 2020)	"Assessment Field, Validation and Documentation of Evidence-based Ecosystem Adaptation Measures with Potential for Scaling-up in Indigenous Cultural Communities"	September 23, 2020	BSU
Matyline A. Camfili-Talastas	1 st Best Paper (104 th Foundation Anniversary	"Learning Day-eng and Liwliwa as told by Ypidlisan"	September 23, 2020	BSU

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
	PRAISE Everlasting Awards 2020)	(Social Sciences Category: Oral Presentation)		
Stanley F. Anongos	3 rd Best Paper (104th Foundation Anniversary PRAISE Everlasting Awards 2020)	“Accommodation of Indigenous Dances in Higher Education Institutions in CAR” (Social Science Category: Oral Presentation)	September 23, 2020	BSU
Andres A. Basalong Hazen Lyn B. Talbino Von Y. Amado	2 nd Best Paper Research Category: Oral Presentation (104th Foundation Anniversary PRAISE Everlasting Awards 2020)	“Impact of the Different Postharvest Processing Methods on the Occurrence of Ochratoxin A and Cupping Quality of Arabica Coffee”	September 23, 2020	BSU
Grace Backian, Ammie Ngaotoy, Grace Backian, Jophr Galian	1 st Best Poster Social AANR Category (104th Foundation Anniversary PRAISE Everlasting Awards 2020)	Survey of the Prevalence and Effect of Taro Leaf Blight and Taro Beetle on Livelihood and Security Indigenous Growers in Benguet and Nueva Vizcaya	September 23, 2020	BSU
Carlito P. Laurean (Project Leader) Jocelyn C. Perez (Study Leader) Jaime B. Codio (Project Staff)	1 st Best Paper, Development Category	Science and Technology Community Based Farm (STCBF) on Spray-Type Chrysanthemum Production: A Model in Accelerating Agricultural Development in Benguet	September 23, 2020	BSU
Karryll Mae C. Ngina, Ma. Theresa Dolipas, Grace Sabado	2 nd Best Poster (Regional Symposium, Education Category)	Project 3: #iGen Hopeful: Exploring iGeneration Student Development Study 2: #iGenEngagement: Exploring iGen Global Citizenship an Civic Engagement in Higher	December 10, 2020	CorCAARRD
Karyll Mae C. Ngina	1 st Best Paper (Regional Symposium, Social Science Category)	Program Title: #iGenHopeful: Exploring iGeneration Wellbeing and Development towards Responsive iGen programs	December 10, 2020	CorCAARRD

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
		Study Title #iGenNarratives: A Life Narrative Approach in Exploring Mental Health Issues of iGeneration Towards a Therapeutic Pedagogy		
Karryl Mae C. Ngina, Editha A. Grande , Liza Ngiao, and Joel V. Lubrica	2 nd Best Paper (Regional Symposium, Social Science Category)	Program Title: #iGenHopeful: Exploring iGeneration Wellbeing and Development towards Responsive iGen Programs Study Title: #iSADgen: Psychological Morbidities of the iGeneration Higher Education Students towards Policy Development	December 10, 2020	CorCAARRD
hordan T. Cuilan; Cynthia T. Lubiton; Candace Grale B. Maclining	1 st Best Paper (Regional Symposium, Education Category)	Master of Arts as a Second Language Graduates' Employment Profile and Program Relevance: Bases for Quality Measure Towards Curriculum Review and Enhancement	December 10, 2020	CorCAARRD
Janet M. Balagtey; Imelda G. Parcasio; Donna Claire L. Coling; Laureen B. Likigan	1 st Best Poster (Regional Symposium, Education Category)	Development of Digital Literacy Test	December 10, 2020	CorCAARRD
Andres A. Basalong Von Y. Amado Hazen Lyn B. Talbino	1 st Best Poster (IET Category)	Effect of Drying Methods and Load Level on Ochratoxin A Contamination and Cup Quality of Arabica Coffee (Poster Presentation)	December 10, 2020	CorCAARRD
Nordalyn B. Pedroche (Project leader) Socorro L. Rulloda (Project Staff)	1 st Place, Research Paper for Research Category	Potential of Entomopathogenic Nematodes as Biological Control Agents Against Soil-Borne Pathogens and Insects in Coffee	December 10, 2020	CorCAARRD
Sherlyn C. Tipayno (Project Leader) Amelia M. Kimeu (study leader) Criselda S. BAttad (study leader)	3 rd Place Best Paper for Research Category	Farming Practices and Biophysical Assessment of Organic Farms Producing Lettuce and Strawberry in Benguet Province	December 10, 2020	CorCAARRD
Valentino L. Macanes, Lesley Dale G. Umayat, Elmer D.Pakipak, Cole	3 rd Place Best Paper Award (Outside Funded:	Arabica Wine Technology Development from	December 10, 2020	CorCAARRD and CIEERDEC

Awardee/s	Award	Title of Research Paper	Date Received	Awarding Organization/ Conferring Body
Jeran Malucay, Jomar T. Tacio, Mirafy G. Balang	Science and technology FIEET Category	Postharvest Processing By-Products		
Sherlyn C. Tipayno, Criselda S. Battad, Amelia M. Kimeu, Norbert Q. Angalan, Jayson D. Komicho, Alfonso O. Fagcayang, Khyle W. Paltican	3 rd Best Paper Award (Outside Funded: Science and Technology AANR Category)	Farming practices and biophysicochemical assessment of soil and irrigation water of organic farms producing lettuce and strawberry in Benguet province	December 10, 2020	CorCAARRD and CIEERDEC

E. UTILITY MODEL APPLICATIONS

The BSU Intellectual Property Rights Office (IPRO) submitted 32 research outputs/technologies for Utility Model application to the Bureau of Patents, Intellectual Property Office Philippines. Meanwhile 27 outputs which were filed from 2017 to 2019 were published by IPO Phil this 2020.

Table 6. List of Utility Model Applications

Title of Technology	Researchers	Date Filed for Patenting/UM	Application Number	Remarks
A process of making vanilla flavored potato ice cream	Dominga E. Gabriel	February 12, 2020	2202000072	Filed
A process of making potato ice cream	Dominga E. Gabriel	February 12, 2020	2202000069	Filed
A process of making spicy chinese cabbage sauce	Dominga E. Gabriel	February 12, 2020	2202000067	Filed
A process of making potato ice cream with chocolate	Dominga E. Gabriel	February 12, 2020	2202000070	Filed
A process for making chickpea in brine solution	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	February 12, 2020	2202000066	Filed
A process for making binatog using chickpea	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	February 12, 2020	2202000071	Filed

Title of Technology	Researchers	Date Filed for Patenting/UM	Application Number	Remarks
A process of making cake enriched with chickpea and sweetpotato	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	February 12, 2020	2202000076	Filed
A process of making salad enriched with chickpea and vegetables	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	February 12, 2020	2202000075	Filed
A process of making chickpea-sweet potato filling	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	February 12, 2020	2202000074	Filed
A process for making pineapple-chayote jam	Jao-jao A. Somyden, Melchor S. Lumiked, Dalifer A. Gano	February 12, 2020	22020000129	Filed
A composition for making pineapple-chayote jam	Jao-jao A. Somyden, Melchor S. Lumiked, Dalifer A. Gano	February 12, 2020	22020000130	Filed
A composition of minerals for formulating feeds for philippine native pigs(black tiaong strain)	Mary Arnel D. Garcia	December 6, 2020		Filed
Agricultural windbreak structure system	Ruth S. Batani Carlito P. Laurean Teresita K. Mangili Jocelyn C. Perez Alexander W. Fagyan Cus M. Kilakil Laudemar L. Luis Craig P. Lucas Sheler D. Ramos	December 7, 2020		Filed
A process for making turmeric(curcuma longa) powder for tea and spice	Esther T. Botangen, Joyce K. Mama-o	December 7, 2020		Filed
A process for making sun-dried pork	Cynthia D. Garambas	December 7, 2020		Filed
Pork smoking material	Cynthia D. Garambas	December 7, 2020		Filed

Title of Technology	Researchers	Date Filed for Patenting/UM	Application Number	Remarks
A device for releasing attractant for coffee berry borer(hypothenemus hampei ferarri)	Gemma S. Das-ilen, Bonie S. Ligat Sr., Fe S. Copero Kevin Joe P. Eladjo	December 7, 2020		Filed
A composition of lemongrass herbal tea flavored with freeze-dried fruits	Kathlyn P. Aragon, Jao-jao A. Somyden	December 7, 2020		Filed
A process for making lemongrass herbal tea flavored with freeze-dried fruits	Kathlyn P. Aragon, Jao-jao A. Somyden	December 7, 2020		Filed
A composition of ube polvoron	Esther T. Botangen, Joyce K. Mama-o	December 7, 2020		Filed
A process for making purple yam polvoron	Esther T. Botangen, Joyce K. Mama-o	December 7, 2020		Filed
A composition of freeze-dried red-fleshed dragon fruit	Jao-jao A. Somyden, Rhea S. Contada, Pelin B. Belino, Johnabel T. Basatan, Ruda Fe A. Suanding	December 7, 2020		Filed
A process for freeze-dried red-fleshed dragon fruit	Jao-jao A. Somyden, Rhea S. Contada, Pelin B. Belino, Johnabel T. Basatan, Ruda Fe A. Suanding	December 7, 2020		Filed
A process for baking cake enriched with sugar beet (beta vulgaris)	Melchor S. Lumiked	December 7, 2020		Filed
A composition of baking cake enriched with zucchini (cucurbita pepo)	Melchor S. Lumiked	December 7, 2020		Filed
A composition of baking cake enriched with sugar beet (beta vulgaris)	Melchor S. Lumiked	December 7, 2020		Filed
A process for baking cake enriched with zucchini (cucurbita pepo)	Melchor S. Lumiked	December 7, 2020		Filed
A process of administering chlorogenic acid (cga) suspension for control of coffee leaf rust	Bernard A. Tad-awan	December 7, 2020		Filed
A process for making dried arabica coffee pulp wine	Lesley Dale G. Umayat, Valentino L. Macanes, Mirafy G. Balang	December 7, 2020		Filed

Title of Technology	Researchers	Date Filed for Patenting/UM	Application Number	Remarks
A composition of dried arabica coffee pulp wine	Lesley Dale G. Umayat, Valentino L. Macanes, Mirafy G. Balang	December 7, 2020		Filed
A composition of preparing buns enriched with vegetable and root crops	Violeta B. Salda, Jofrey J. Bayating, Manuel M. Dorado Jr.	December 7, 2020		Filed
A process for making buns enriched with vegetable and root crops	Violeta B. Salda, Jofrey J. Bayating, Manuel M. Dorado Jr.	December 7, 2020		Filed
A process of making polvoron enriched with chickpea	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	February 12, 2020	2202000077	Published
Portable coconut dehusking machine with detachable blade assembly	Istvan Joe Quiamco, Regine Ducusin, John Malamug	06-06-2018	1-2018-050200	Published
Composition of potato ice cream with chocolate	Dominga E. Gabriel	20-09-2018	2-2018-050405	Published
Composition of spicy chinese cabbage sauce	Dominga E. Gabriel	20-09-2018	2-2018-050401	Published
Sweet potato-puto	Hilda L. Quindara	25-06-2018	2-2018-000600	Published
Multi-purpose digging tool	Benjamin Piaga	21-05-2018	2-2018-000433	Published
Radiator holder and preparing stand	Benjamin Piaga	21-05-2018	2-2018-000430	Published
Portable oil refilling device for differential and transmission	Benjamin Piaga	21-05-2018	2-2018-000434	Published
Portable and multi-purpose loading flat forms	Benjamin Piaga	21-05-2018	2-2018-000435	Published
A composition of potato ice cream with chocolate	Dominga E. Gabriel	21-09-2018	2-2018-050405	Published
Composition of vanilla flavored potato ice cream	Dominga E. Gabriel	21-09-2018	2-2018-050408	Published
Composition of potato ice cream with buko-pandan flavor	Dominga E. Gabriel	21-09-2018	2-2018-050406	Published
Seed propagation of yam through slip	Cynthia Kiswa	21-09-2018	2-2018-50409	Published

Title of Technology	Researchers	Date Filed for Patenting/UM	Application Number	Remarks
A composition for making freeze-dried guyabano	Jao-jao A. Somyden, Rhea S. Contada, Pelin B. Belino, Johnabel T. Basatan, Ruda Fe A. Suanding, Elena Ganado	25-06-2019	2-2019-000760	Published
A process for making freeze-dried guyabano	Jao-jao A. Somyden, Rhea S. Contada, Pelin B. Belino, Johnabel T. Basatan, Ruda Fe A. Suanding, Elena Ganado	25-06-2019	2-2019-000761	Published
A composition for making basil flavored ice cream	Jao-jao A. Somyden, Rhea S. Contada, Pelin B. Belino, Johnabel T. Basatan, Ruda Fe A. Suanding, Elena Ganado	17-12-2019	2-2019-001617	Published
Process for making basil flavored ice cream	Jao-jao A. Somyden, Rhea S. Contada, Pelin B. Belino, Johnabel T. Basatan, Ruda Fe A. Suanding, Elena Ganado	17-12-2019	2-2019-001610	Published
Composition of making pigeon pea flavored ice cream	Karen Aroco, Jessica Binha-on, Jonalyn Cabbigat, Jao-jao A. Somyden	17-12-2019	2-2019-001611	Published
Process for making pigeon pea flavored ice cream	Karen Aroco, Jessica Binha-on, Jonalyn Cabbigat, Jao-jao A. Somyden	17-12-2019	2-2019-001609	Published
Process for making binatog using chickpea	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	12-02-2020	2-2020-000071	Published
Composition for making hummus	Ines C. Gonzales,	20-12-2018	2-2018-001621	Published

Title of Technology	Researchers	Date Filed for Patenting/UM	Application Number	Remarks
	Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o			
Composition for making crackers enriched with chickpea	Ines C. Gonzales, Hilda L. Quindara, Pelin B. Belino, Fernando R. Gonzales, Esther T. Botangen, Joyce K. Mama-o	20-12-2018	2-2018-001623	Published
Process for making mixed vegetable pickles	Lesley Dale G. Umayat	27-11-2017	2-2017-000950	Published
Method of vacuum packing of dried peanut kernels	Hilda L. Quindara	10-05-2019	2-2019-000573	Published
Composition of fruit flavored sweetpotato candied products	Ines C. Gonzales, Hilda L. Quindara, Esther T. Botangen, Isidro Awal	27-11-2017	2-2017-000951	Published
Planting device for seeds and seedlings	Benjamin Piaga	21-05-2018	2-2018-000429	Published
A production method of toasting shelled peanuts	Hilda L. Quindara	25-06-2019	2-2019-000765	Published

F. PUBLICATIONS REGISTERED FOR COPYRIGHT PROTECTION

The BSU Intellectual Property Right Office was able to register a total of 111 creations/compositions in the form of instructional materials, manuals, books, journals, brochures, production guides and other creative works to the National Library of the Philippines.

G. WRITESHOP/TRAININGS/ SEMINARS AND OUTREACH ACTIVITIES CONDUCTED/ FACILITATED

A total of 121 seminars/trainings/writeshops/information dissemination activities were conducted by the various centers, institutes, and colleges for the year 2020. More than 7,000 individuals were catered from the activities conducted.

Table 7. Writeshops/Trainings/ Seminars Conducted

OFFICE/ CENTER/INSTITUTE/ COLLEGE	No. Conducted Trainings	No. of Trainees/ Beneficiaries
Office of Extension Services	10	623
Office of Research Services	1	250
Agri-based Technology Business Incubator/Innovation Center (ATBI/IC)	17	525
Cordillera Center for Animal Research and Development (CCARD)	1	52
Cordillera Organic Agriculture Research and Development Center (COARDC)	3	138
Cordillera Regional Apiculture Center (CRAC)	3	264
Food Science Research and Innovation Center (FSRIC)	6	322
GeoInformatics	3	116
Higher Education Regional Research Center (HERRC)	5	298
Horticulture Research and Training Institute (HORTI)	4	282
IHFSA	6	127
Institute of Social Research and Development (ISRD)	7	831
Intellectual Property Rights Office (IPRO)	3	299
Northern Philippines Root Crops Research and Training Center (NPRCRTC)	3	68
Research and Extension Publication Office (REPO)	4	242
Cordillera Consortium on Agriculture Aquatic Resources Research and Development (CorCAARRD)	3	658
College of Agriculture	4	98
College of Arts and Sciences	2	76
College of Forestry	1	84
College of Home Economics and Technology	9	223
College of Teacher Education	12	756
College of Nursing	3	138
College of Veterinary Medicine	6	193
Open University	1	9
Office of Student Services	2	601
College of Engineering and Applied Technology	2	29
TOTAL	121	7,302

R & E DOCUMENTATIONS

- ✚ The R and E sector facilitated the conduct of the Stakeholder Consultation on Pest Risk Analysis for the Importation of Fresh Strawberry Fruits from the Republic of Korea on July 2, 2020 held at the everlasting hall of the new R & E bldg. The consultation was attended by representatives from the Local Government of La Trinidad, BSU experts, representatives from the Provincial and Regional Agriculture Offices, strawberry farmers and other stakeholders. The group discussed the advantages and disadvantages of allowing the entry of fresh strawberry fruits in the country from the Republic of Korea. As a result of the activity, a position letter was formulated by the strawberry growers group expressing their sentiments on the said importation, and the experts from BSU came up with their PRA technical evaluation and recommendation on the matter. The documents served as the basis of the Local Government of La Trinidad for an appropriate legislative action.



- ✚ The Center for Geoinformatics conducted the training on the Application of Geographic Information System on Research and Extension on July 28 -30, 2020 with 35 participants and training on Climate-Risk Vulnerability Assessment (CRVA), Climate-Resilient Agri-fisheries (CRA), and Cost Benefit Analysis (CBA) for Adaptation and Mitigation Initiative in Agriculture (AMIA) in CAR on August 4-6, 2020 with 25 participants. Both activities were held at the Everlasting Hall of the R & E bldg.



The Research and Extension Publication Office (REPO) conducted the Journal Research Article Writing Mentoring Workshop last August 11-12, 2020 at the Everlasting Hall, R & E bldg. Dr. Lily Ann D. Lando served as the resource speaker. She discussed tips on writing research articles for a scientific journal.

Use the correct graph

	Bare Concrete	Portable Drying Bed	Greenhouse-type	Mechanical Dryer	Total
10kg/m ²	16	12	4	12	44
20kg/m ²	16	14	7	13	50
TOTAL	32	26	11	25	94

re 2. Number of fungal isolates from the different drying structures and load level or trays

INTRODUCTION: Using the CARS model [Creating a Research Space]

ESTABLISHING A TERRITORY	ESTABLISHING A NICHE	OCCUPYING THE NICHE
<ul style="list-style-type: none"> • Claiming centrality AND/OR • Making topic generalizations AND/OR • Reviewing items of previous research 	<ul style="list-style-type: none"> • Counter claiming OR • Indicating a gap OR • Question raising OR • Continuing a tradition 	<ol style="list-style-type: none"> 1. Outlining purposes OR Announcing present research 2. Announcing principal findings 3. Indicating RA structure

The Institute of Social Research and Development conducted a webinar on “Indigenous Knowledge and Practices in the Cordilleras” held on August 27, 2020. This is part of the celebration of the International Day of the Indigenous Peoples.

Monitoring of participants, checking comments and technical assistance

Resource Speakers: From left Keat Alindayo, Shordan Sulan, Matyline Samfil, Calotes, Romar Farceno

- ✚ The Benguet State University-Northern Philippine Root Crops Research and Training Center (BSU - NPRCRTC) formally received on November 11, 2020, its certificate of accreditation as potato seed producer from the National Seed Quality Control Services of the Bureau of Plant Industry (BPI) after complying with the findings and recommendations of the evaluation team from BPI.



- ✚ The Cordillera Consortium on Agriculture Aquatic Resources Research and Development (CorCAARRD) is 2nd runner-up in the UGNAY Awards held virtually on December 22, 2020, as part of PCAARRD's anniversary celebration. The award is granted by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) to recognize outstanding performing Consortia nationwide. The Consortium received a trophy, plaque of recognition, and Php 800,000 cash incentive from PCAARRD.

- ✚ The Benguet State University - Northern Philippine Root Crops Research and Training Center (BSU – NPRCRTC) formally received on November 11, 2020, its certificate of accreditation as potato seed producer from the National Seed Quality Control Services of the Bureau of Plant Industry (BPI) after complying with the findings and recommendations of the evaluation team from BPI. With the accreditation, buyers are ensured to acquire clean and quality seed potato planting materials from the Center. According to the accreditors, NPRCRTC is the first institution to be accredited in the Cordillera Administrative Region.