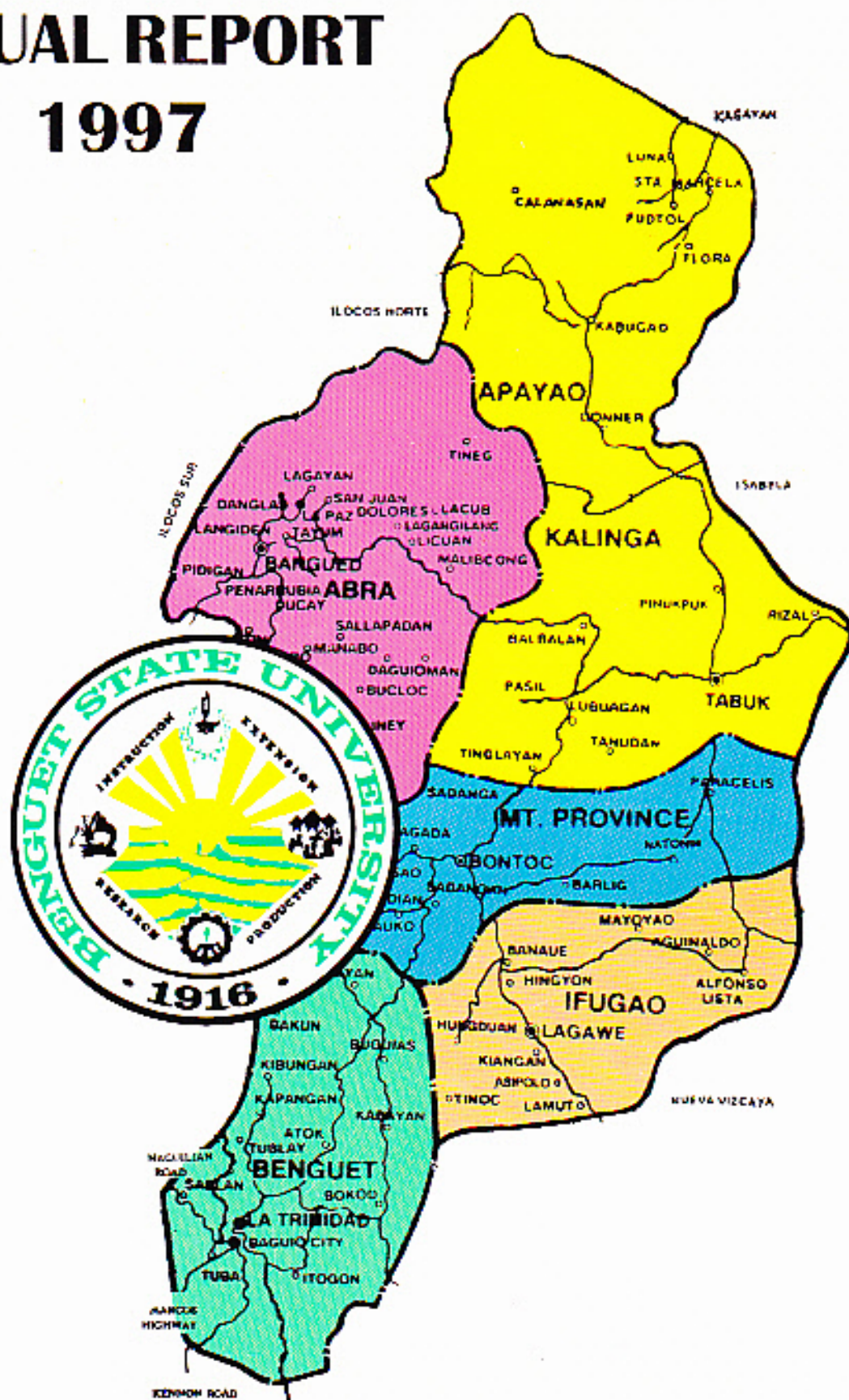


# ANNUAL REPORT

## 1997





Republic of the Philippines  
**BENGUET STATE UNIVERSITY**  
La Trinidad, 2601 Benguet  
*Office of the President*



March 1998

His Excellency  
**FIDEL V. RAMOS**  
President  
Republic of the Philippines  
Malacañang, Manila

Thru: **HON. ANGEL C. ALCALA**  
Chairman, Commission on Higher Education  
and BSU Board of Regents  
DAP Building, San Miguel Avenue  
Ortigas Center, Pasig City

Sir:

I have the honor to submit the 1997 Annual Report of the Benguet State University (BSU).

Based on the mandates of the University, i.e. **INSTRUCTION, RESEARCH, EXTENSION** and **PRODUCTION**, please find our modest accomplishments.

In behalf of the BSU Family and the Board of Regents, I would like to say thank you for all the support that your **LEADERSHIP** has extended for the continuing development and success of the University.

**MABUHAY!** and more power.

Very respectfully yours,

**CIPRIANO C. CONSOLACION**  
President

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## EXECUTIVE SUMMARY



*The Honorable Dr. Cipriano C. Consolacion, the 3rd University President*

The Benguet State University has continued to fully discharge its four-fold functions of Instruction, Research, Extension and Production with ever purposive vigor and excellence during the year in review,.

### Instruction

To add to its current degree and non-degree programs, BSU started to operationalize its Open University Program. This program was made possible with the financial aid given by Speaker Jose de Venecia. The program aims to offer an alternative scheme of providing education to people of the Cordillera Administrative Region. Through this program, BSU hopes to reach a broader spectrum of students within the region.

A total of 648 students graduated during the year in review, with one honored as a *magna cum laude* and five others as *cum laude*.

The University continued to build up its library facilities and capabilities to make it more responsive to the needs of the academic and research communities. For 1997, the University acquired at least 498 books and 5 CDROM and added 127 periodical titles to its previous collection for the University library. The different colleges on their part acquired new volumes for their respective libraries. Library holdings are now computerized.

BSU is still in the forefront of academic accreditation among the SCUs. All its academic programs have undergone accreditation with one (1) college having gone through the first revisit for Level III status, five (5) at Level II and three (3) still in Level I.



*Computer Literacy among student is increasingly becoming a vital tool of learning and it is a must in this age of globalization.*



## Research

The University has reaped the dividends of its research efforts. Technologies in vegetable, fruit tree, cutflower and animal production, health and nutrition, energy, agroforestry, and forest conservation have been promoted to farmers, entrepreneurs, housewives, out-of-school youths, extension officers and researchers. Three technologies developed which are already for dissemination, include: mass propagation and promotion of new potato varieties, and new



*A selection of mushroom species for dry condition production.*

variety of garden pea designated as CGP18 and selection of mushroom species for dry condition production. Two of the technologies developed were presented in a Department of Science and Technology(DOST)-sponsored investors forum and investment matching.

Taking notice of BSU's efforts to uplift the livelihood of the highland vegetable farmers, the Society for the Advancement of the Vegetable Industry conferred Recognition Awards to both the Horticultural Research and Training Institute and the Northern Philippine Root Crops Research and Training Center. Individual researchers were honored in various ways, such as awarding of

professorial chairs in Agricultural Science, best presenter and poster awards in scientific fora.

## Extension

The University intensified its extension activities during the year in review through the establishment of a regular agri-school-on-the-air over a local radio station, various campus and off-campus training programs, seminars and workshops. Technology demonstration areas were set up on the campus for vegetables and cutflowers. Among the technologies demonstrated in these areas include production of pesticide residue-free broccoli and garden pea and the effect of blacking out for flower development in chrysanthemum production.

Six(6) technologies were piloted by nine (9) groups of small and medium scale agri-based enterprises (SMEs) in different municipalities of Benguet, Mountain Province and in Aringay, La Union. The Technology Application and Promotion Institute of DOST provided the logistical support for this program.

Various information, education and communication materials (IECs) were produced/published including "Coffee Production under Pine-based Agroforestry System".

The BSU-ANEC (Affiliated Non-Conventional Energy Center) Project was again chosen one of the top five (5) ANECs nationwide.

## Production

For the year under review, the Income-Generating Projects (IGPs)of the University (Fund 161 and 163) generated a total net income of P2,048,984.56 or 144% higher than last year's net-income of P849,208.33.

An additional income of P717,306.85 from other sources, like stall rentals and land use, were realized.



Utilization of some IGPs were maximized not only through incomes but also as a pilot training grounds for students of the University and other practicum students from other schools and universities in the region.





## HIGHLIGHTS OF ACCOMPLISHMENTS

### AWARDS



Dr. Leoncia L. Tandang of the R & D awardees of BSU is about to receive her certificate of completion from Dr. Sung-Neh Cho, President, Korea Industrial Association for attending the International Workshop on R & D Management from August-September, 1997 in Seoul, Korea.

Dr. Zenaida N. Ganga of Highland Agricultural Research Resources and Development Consortium (HARRDEC) also an awardee, delivering her message in one occasion of the University.

#### Research and Development Awards

The University was conferred the 1997 Society for the Advancement of the Vegetable Industry, Inc. (SAVI), Recognition Award through NPRCRTC and HORTI. This award was given to both the NPRCRTC and HORTI for their profound contribution to the vegetable industry in developing and promoting technologies for highland vegetables specifically potato, sweetpotato, cabbage, garden pea, snapbean, mushroom and asparagus. Their R and D efforts have helped uplift the livelihood of highland farmers.

Individual researchers have been awarded for their work. These are as follows:

1. Third Poster Award: *"Is Biodiversity Threatened by Indigenous Harvesting Methods?"* by Prof. Lita M. Colling during

the 1997 Annual Scientific Conference and of the Federation of Crop Science Societies of the Philippines.

2. Best Presenter Award: *"Development of Late Blight Resistant and Processing Potato Varieties"* by Dr. Zenaida N. Ganga. Also one of the 15 papers selected for presentation during the DOSTTAPI's Investors' Forum and Investment Matching.
3. Dr. Leoncia L. Tandang's paper on *Promising Technology for Commercialization: New Improved Variety of Garden Pea*.

BSU-IPB CGP 14 "Trinidad" was also selected for presentation (out of 15 selected papers only) during the DOSTTAPI's Investors' Forum and Investment Matching.

4. Dr. Luciana M. Villanueva and Dr. Araceli G. Ladilad were awarded the PARRFI Professorial Chair in Agricultural Science.

Technologies generated by the University were recognized during the Regional Symposium on R and D Highlights held on September 12, 1997 at BSU, La Trinidad, Benguet. This symposium was sponsored by BSU and Highland Agricultural Resources Research Development Consortium (HARRDEC).

These are: (1) Technology on Oyster Mushroom sp (*Pleurotus Hybridus* White) for Dry Condition Production by Dr. J.S. Luis, A.M. Baybay, and J.A. Cabasoy - Third Best paper Oral Presentation, and the (2) Management Strategies for Bacterial Wilt of Potato by J.C. Perez, T.C. Diccion, G.S. Backlan, E.C. Bugat, J.C. Galap, M.C. Domingo, R.S. Abance, M.D. Madilat and C.L. Oryan - First Best Poster Award.



### Student Awardees

Aside from the faculty and staff awardees, students' excellence were also recognized in various academic related activities in local and regional levels. These student awardees were:

1. **BAWANG, Rex John.** First Place, Parliamentary Procedures (as Chairman of the group) and First Place, Vocal Duet, 10<sup>th</sup> Regional FFP-FAHP-FFPCC Work Conference on June 3-27, 1997; 4<sup>th</sup> Place, Parliamentary Procedures on July 14-18, 1997.
2. **BOLINGET, Andres.** First Place, Parliamentary Procedures (as member of the group) and 3<sup>rd</sup> Place, Marcotting, regional.
3. **DEL-AMEN, Douglas.** First Place, Parliamentary Procedures (as member of the group); 2<sup>nd</sup> place, Cleft Grafting; and 2<sup>nd</sup> Place, T-budding, regional; 4<sup>th</sup> Place, Parliamentary Procedures (as member), national.
4. **MANUEL, Roy.** First Place, Parliamentary Procedures (as Co-Chairman); First Place, Fertilizer Competition; 3<sup>rd</sup> Place, Extemporaneous Speech, regional; First Place, Battle of the Brains, Regional and



*Dr. Franco T. Bawang (left), about to receive from Gen. Raul M. Molintas his leadership award during the Province's Foundation Anniversary last June 18, 1997.*



*The Team of FFPCC Parliamentary Procedure Contestants to the FFPCC, FFP, and FAHP National Convention at Aklan, together with some FFP delegates fronting their haul of trophies. FFPCC president for 1997-1998: Rex John Bawang is 4<sup>th</sup> from left.*

National; 4<sup>th</sup> Place, Parliamentary Procedures (as co-chairman), national;

First Place, Nutri-Quiz, Nutrition Month Culmination Program of the CHET on July 30, 1997.

5. **MARCELINO, Sharon.** First Runner-up and Best in Gown. Search for Miss Regional FFPCC Regional, and 5<sup>th</sup> Place, Declamation, regional, 10<sup>th</sup> Place, Search for the 1997 D'Whiz Kids on July 18, 1997.
6. **VALLAR, Carmela.** 8<sup>th</sup> Place, Search for 1997 D'Whiz Kids.
7. **GONZALES, Dulce.** 9<sup>th</sup> Place, Search for 1997 D'Whiz Kids.

### Other Awards

*Dr. Franco T. Bawang*, Executive Vice President of the University, again received a "Leadership Award," during the foundation anniversary last June 18, 1997 of the Province of Benguet.

*Dr. Nora J. Claravall*, Chief Librarian, was proclaimed as one of the "Outstanding Librarian of the Year," by the Philippine Association of Academic and Research Librarian.



## Instruction

### Enrollment Profile by Degree Programs, for Summer, 1997 and SY 1997-1998

A total of 1,458 students enrolled for the summer term. During the first semester, a total of 6,287 students enrolled in the graduate, undergraduate, non-degree, secondary and elementary programs. The number of enrollees for the second semester decreased to 6,031. The decrease was more in the undergraduate level. In the graduate level, the increase was slight (Table 1).

In the graduate courses, the various master's degree programs attracted more enrollees than the doctorate degree. In the undergraduate level, the Bachelor of Science in Agriculture continued to draw the highest number of enrollees followed by the Bachelor of Science in Elementary and Secondary Education.

Since the mandate of the University focuses on higher education, admission in the secondary and elementary level were limited to 500 and 774 student, respectively.

They served as the training laboratories for college students taking up teacher education.

In the non-degree courses, gradual increase in enrollment was observed from Summer 1997 to Second Semester of SY 1997-



*The Bachelor of Science in Agriculture continued to draw the highest number of enrollees.*

1998.

The University also had a total of twenty-four cross-enrollees from other schools nearby.



**Table 1. Enrollment by degree program/course for summer, first and second semesters (SY 1997-98)**

DEGREE PROGRAMS	SUMMER 1997	1st Semester	2nd Semester
<b>A. Graduate</b>			
Ph.D./Ed.D.	38	76	99
MS/MA/MAT	251	407	429
<b>Sub-total</b>	<b>329</b>	<b>483</b>	<b>528</b>
<b>B. Undergraduate</b>			
B. S. Agribusiness	47	164	148
B. S. Agriculture	242	1122	1043
B. S. Agricultural Education	77	262	239
B. S. Agricultural Engineering	94	208	181
B. S. Animal Science Technology	43	138	125
B. S. Applied Statistics	0	5	5
B. Secondary Education	135	569	536
B. Science in Elementary Education	96	548	529
B. S. Environmental Science	6	168	164
B. S. Forestry	129	292	272
B. S. Home Economics	39	300	290
B. S. Nursing	0	114	101
B. S. Nutrition and Dietetics	64	168	158
Doctor of Veterinary Medicine	53	210	198
<b>Sub-total</b>	<b>1025</b>	<b>4268</b>	<b>3989</b>
<b>C. NON-DEGREE</b>			
Auto Mechanics	0	30	20
Certificate in Forest Ranger	12	60	54
Certificate in Home Management Arts	0	49	30
Certificate in Physical Education	57	28	49
Diploma in Agroforestry	28	91	74
Cross-Enrollees	7	4	13
<b>Sub-Total</b>	<b>104</b>	<b>262</b>	<b>240</b>
<b>D. SECONDARY (I-IV years)</b>		<b>500</b>	<b>500</b>
<b>E. ELEMENTARY (Grade I-VI)</b>		<b>774</b>	<b>774</b>
<b>GRAND TOTAL</b>	<b>1458</b>	<b>6287</b>	<b>6031</b>

### Open University Program

The Open University (OU) program is a special program of the University, which started to offer 20 short-term courses during

the first semester with 702 enrollees. However, during the second semester, only 114 enrolled in 14 short-term courses that were offered. In the same semester, seven master's degree courses were offered with 134 enrollees.

Table 2. Enrollment under the open university Program

Program	1st Semester	Second Semester
Master's Degree	-	134
Short-term Courses	702	114
<b>Total</b>	<b>702</b>	<b>248</b>

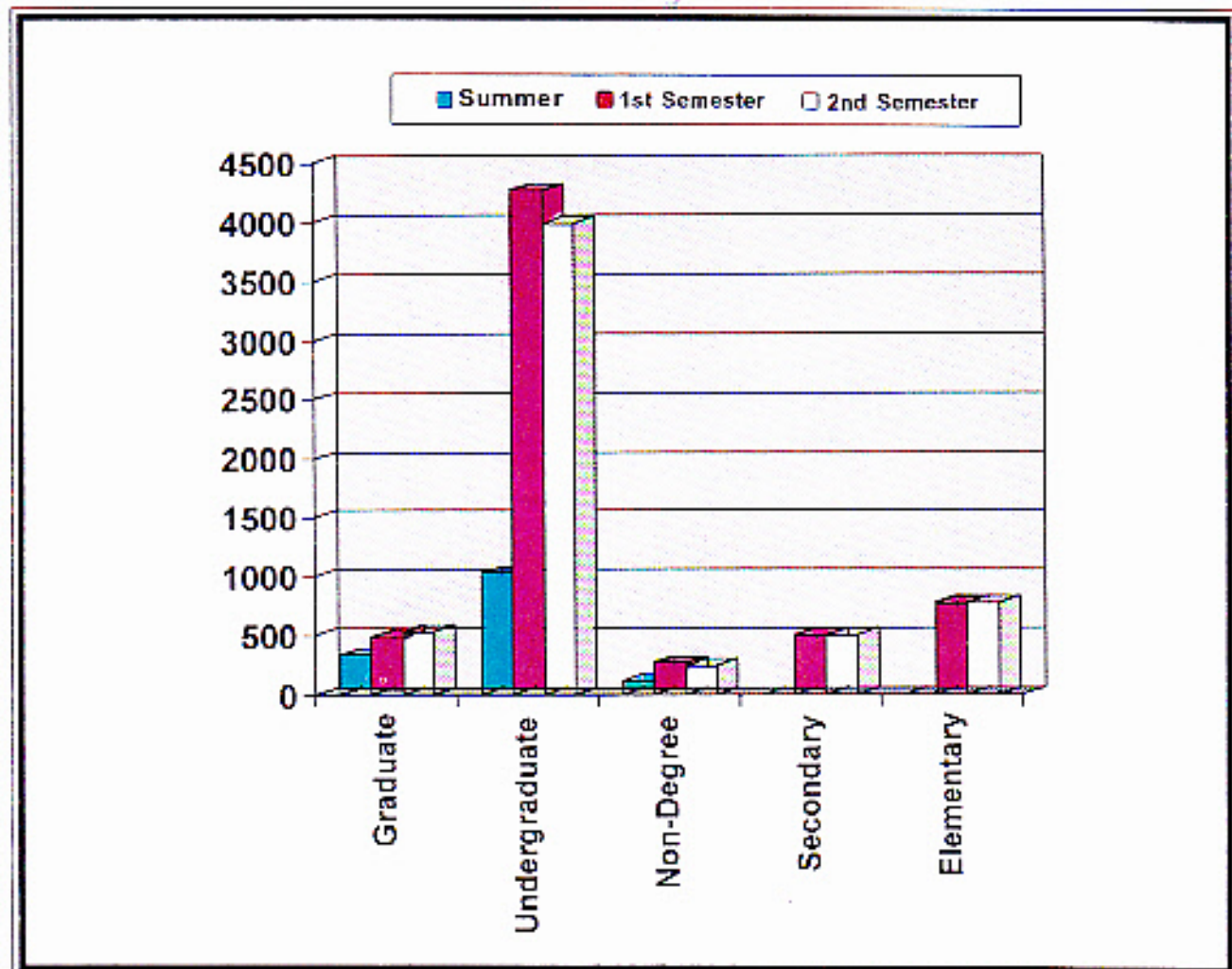


Figure 1. Distribution of Students by Program Level





*STUDENT ACTIVITIES.* Student involvement in multi-disciplinary activities (landscaping, tree planting, literary-musical, cultural, workshops, etc.) were some basic institutional steps the University afforded the students to experience while studying.



## Graduates, 1997

For the year under review, the University graduated a total of 1,105 students distributed as follows (Table 3): Graduate – 44 (4%); Undergraduate– 608 (55%); Non-degree – 96(9%); Secondary – 197 (18%) and Elementary –160(14%).

Table 3. Total number of graduates by program for the year 1997

DEGREE PROGRAMS	March 1997	May 1997	October 1997	TOTAL
<b>A. Graduate</b>				
Ph.D./Ed.D.	7	1	1	9
MS/MA	17	7	11	35
<b>TOTAL</b>	<b>24</b>	<b>8</b>	<b>12</b>	<b>44</b>
<b>B. Undergraduate</b>				
Bachelor of Elementary Education	54	3	5	62
Bachelor of Secondary Education	82	2	7	91
Bachelor of Science in Agriculture	145	6	28	179
Bachelor of Science in Agri-business	37	0	3	40
Bachelor of Science in Agricultural Education	21	0	5	26
Bachelor of Science in Agricultural Engineering	8	0	10	18
Bachelor of Science in Applied Statistics	0	0	1	1
Bachelor of Science in Animal Technology	6	1	4	11
Bachelor of Science in Environmental Science	0	0	0	0
Bachelor of Science in Forestry	78	5	8	91
Bachelor of Science in Home Economics	18	0	0	18
Bachelor of Science in Nursing	32	0	0	32
Bachelor of Science in Nutrition & Dietetics	20	5	2	32
Doctor of Veterinary Medicine	12	0	0	12
<b>C. TOTAL</b>	<b>513</b>	<b>22</b>	<b>73</b>	<b>608</b>
<b>Non-Degree</b>				
Certificate in Physical Education	2	7	0	9
Diploma in Agroforestry	19	0	0	19
Forest Ranger Course	11	0	0	11
Home Management Arts	23	0	0	23
Auto- Maintenance Mechanics	17	0	17	34
<b>TOTAL</b>	<b>72</b>	<b>7</b>	<b>17</b>	<b>96</b>
<b>D. Secondary Level</b>	<b>197</b>			<b>197</b>
<b>E. Elementary Level</b>	<b>160</b>			<b>160</b>
<b>Grand Total</b>				<b>1,105</b>

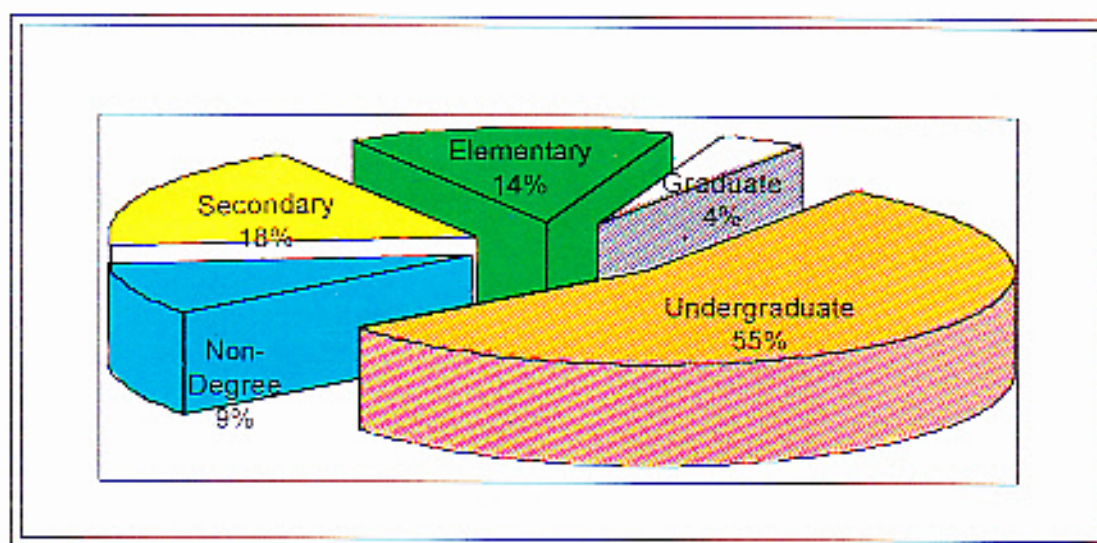


Figure 2. Distribution of Graduates by Program Level

### Board/Licensure Examination Performance

BSU graduates in the fields of nursing, agricultural engineering, home economics and education continued to show proficiency as the results of the different national licensure examinations attested. The BSU passing percentage in these fields were either higher or equal to the national (Table 4). The passing percentage of the graduates in other licensure

examinations were pulled down by the poor performance of examinees who graduated some years back.

It is a consensus among officials in the academe and among examinees that the results of the board examinations will be a lot better if a review center nearby will be set up and sufficient review materials will be made available.

Table 4. Result of licensure/board examination, 1997

COLLEGE	LICENSURE EXAMINATION	PASSING RATE	
		BSU	NATIONAL
CEAT	Agricultural Engineer	58.00	53.00
CF	Forester	24.00	31.00
CHET	Dietician and Nutritionist	38.00	82.00
	BSHE Licensure Exam for Teachers(LET)	70.00	75.00
CN	Nurse	90.32	48.00
CTE	REE -LET	74.00	74.00
	BSAE- LET	62.50	62.50
	BSE -LET	70.60	70.15
CVM	Veterinarian	28.00	45.00



### Student Scholarship Program

Based on the summary report of the Student Financial Aide Office (SFAO), 513 students for the 1st semester and 472 for the 2<sup>nd</sup> semester, were able to avail of scholarship grants both from BSU and outside BSU, both private and public (Appendix 3). Benefits enjoyed included free tuition/laboratory fees, monthly allowances, and some clothing and living allowances.

The private scholarship sponsors were PNB, ERAP, La Tondeña Foundation, ZONTA, CFO-DFA, Dr. Dong Sup Lee, and ROMERO Foundation.

For the open scholarship slots, the SFAO was still in the process of screening probable applicants for entitlement of the Poverty Alleviation Fund, Disciples for Christ and ZONTA Scholarship.

On the other hand, government scholarships such as SSP, NISGR, SEGEAR, Special SEGEAR, DOST, ONCC, and PAF

among others, were granted to deserving students.

The University also granted scholarships to deserving legal dependents of BSU personnel. These, privileges included tuition and laboratory fees.

Students who were active members of recognized organizations of the University were also beneficiaries of the University scholarship scheme. This includes legal dependents of Barangay officials within the province of Benguet and Baguio City.

### Accreditation Status/Results

All degree programs of the University underwent at least the first level of accreditation by AACUP.

As of 1997, the accreditation status of the College of Arts and Sciences was in Level III. Five colleges were in Level II and three in Level I. The Colleges of Arts and Sciences and the Graduate School were revisited in December 1-4.

Table 5. Accreditation status of the different colleges

COLLEGES	COLLEGE LEVEL	DATE OF NEXT EVALUATION
College of Agriculture(CA)	II	February 1998
College of Arts and Sciences(CAS)	III(1st revisit)	Visited Dec. 1-4, 1997
College of Eng'g and Applied Technology(CEAT)	I	2 <sup>nd</sup> Sem. 1998-99
College of Forestry(CF)	I	2 <sup>nd</sup> Sem. 1998-99
College of Home Econ. and Technology (CHET)	I	2 <sup>nd</sup> Sem. 1998-99
College of Nursing(CN)	II	February 1998
College of Teacher Education(CTE)	II	September 1998
College of Veterinary Medicine(CVM)	II	February 1998
Graduate School(GS)	II(Agriculture programs)	Visited Dec. 1-4, 1997



### Faculty Distribution by College and Academic Rank

As to the distribution of the faculty members, the College of Arts and Sciences/ Institute of Public Administration (27%), the College of Teacher Education (26%) and the College of Agriculture (24%) had the most number of faculty members. The College of Nursing (3%) and Institute of Physical Education and Sports (3%) had the least number of faculty members. The

distribution of faculty members in the CHET was 5%, while 4% in the CF, CEAT and CVM.

By academic rank, 68 of the faculty members were full Professor, the rest were either Assistant Professor (79) or Associate Professor (75). Only 57 were Instructor. The College of Agriculture and the College of Arts and Sciences had the highest number of faculty members (23 each) with professorial rank.

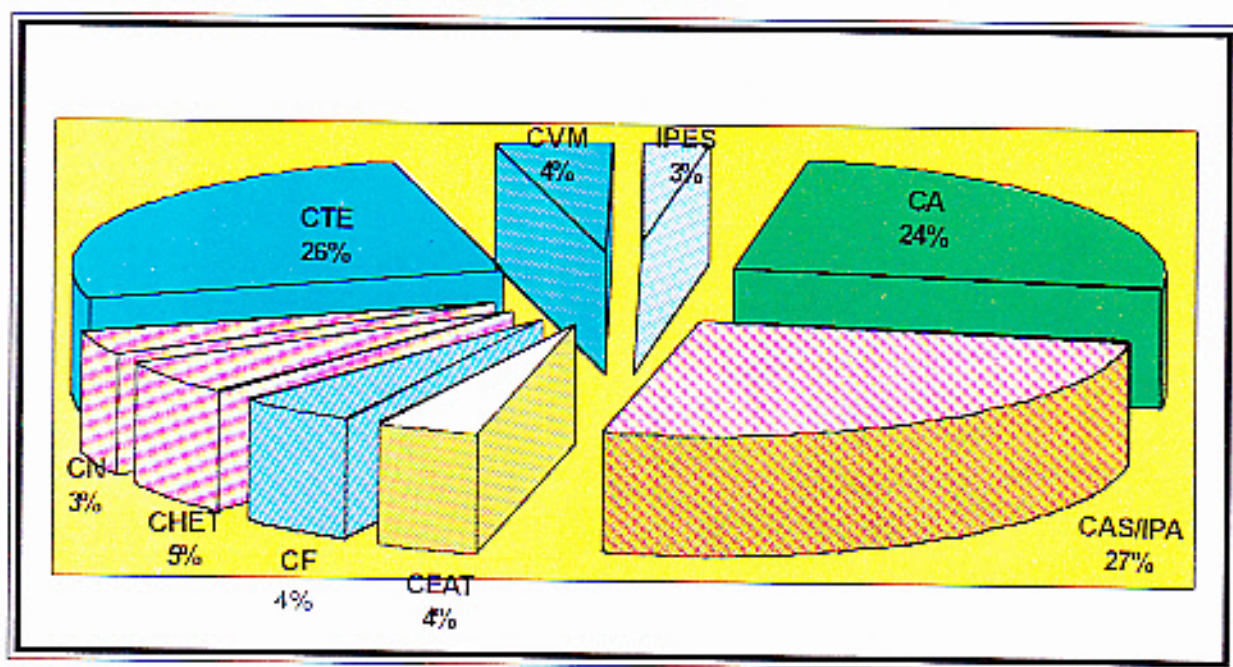


Figure 3. Distribution of Faculty by College

Table 6. Faculty distribution by college and academic ranks

COLLEGE	INST.	ASST. PROF	ASSOC. PROF	PROFESSOR	TOTAL
College of Agriculture	9	13	23	23	68
College of Arts and Sciences/ Institute of Public Administration	15	18	18	23	74
College of Engineering and Applied Technology	3	5	1	2	11
College of Forestry	8	4	0	0	12
College of Home Economics and Technology	2	5	2	5	14
College of Nursing	4	4	1	0	9
College of Teacher Education	11	22	27	12	72
College of Veterinary Medicine	3	7	0	2	12
Institute of Physical Education and Sports	2	1	3	1	7
<b>TOTAL</b>	<b>57</b>	<b>79</b>	<b>75</b>	<b>68</b>	<b>279</b>

### Faculty Distribution by Degree

Out of the 279 faculty members, 80 (28.7%) have Ph.D./Ed.D. degrees, 113(40.5%) finished their master's degree while the rest were baccalaureate degree holders.

Table 7. Distribution of faculty by college and degree

COLLEGE	BS/BA	MS/MA	Ph.D/Ed.D	TOTAL
CA	16	22	30	68
CAS/IPA	19	30	25	74
CEAT	4	6	1	11
CF	7	4	1	12
CHET	5	6	3	14
CN	4	3	2	9
CTE	26	30	16	72
CVM	1	11	1	12
IPES	4	2	1	7
<b>TOTAL</b>	<b>86</b>	<b>113</b>	<b>80</b>	<b>279</b>



## Manpower Profile

### Total Manpower Resources

The total manpower resource of the University was 522, classified as teaching and non-teaching personnel. The

employment status of the 279 teaching personnel were broken down as follows: 263 permanent; 9 temporary, and 7 substitutes. All 243 non-teaching personnel had permanent status (Table 8).

**Table 8. Total manpower resources by status and classification as of 1997**

STATUS	TEACHING	NON-TEACHING	TOTAL
Permanent	263	243	315
Temporary	9	-	9
Substitute	7	-	7
<b>TOTAL</b>	<b>279</b>	<b>243</b>	<b>522</b>

### Staff Development

In order to provide quality education and services to its clientele, a total of 35 scholars composed of non-teaching and teaching personnel pursued their advanced studies here and abroad.

For the faculty group, 7 completed their respective doctorate degrees, 6 completed their master's degree and 2 finished one year diploma course or advance studies. Nineteen pursued doctorate program, 8 for their master's and 1 for a sabbatical leave to write a book.



*Dr. Marcos A. Buliyat, Vice President for Academic Affairs, presiding in one of the Administrative Council Meetings.*

**Table 9. Number of personnel on study grant/leave, sabbatical leave**

GROUP	SCHOLARSHIP			Total
	Ph.D/Ed.D.	MS/MA	Sabbatical Leave	
Faculty	19	8	1	28
Non-teaching	2	4	1	7
<b>Total</b>	<b>21</b>	<b>12</b>	<b>2</b>	<b>35</b>





*THE THREE VPs: Dr. Franco T. Bawang (topmost), University Vice President; Dr. Marcos A. Buliyat, Vice President for Academic Affairs (middle), and Dr. Rogelio D. Colting, Vice President for Research and Extension (bottom) all smiles while delivering their respective speeches on different occasions.*

*FACULTY and STAFF SCENARIOS: Task force members working seriously for the "fine-tuning" process of the BSU Code (top); International Scholars, take a pose for a souvenir picture (middle); Researchers and Extension workers with some of the BSU showcases on display (bottom).*

TECHNOLOGIES FOR GLOBAL COMPETITIVENESS

FOOD PRO



To update or improve competencies of the faculty members, 6 were sent for short-term trainings abroad. About 60 were allowed to attend national trainings for a maximum period of 3 weeks. In addition, 7 faculty members attended/presented papers in international scientific conferences abroad.

On the other hand, two non-teaching personnel are doctorate degree candidates, 4 in the master's degree while one availed of the sabbatical leave program of the University to undertake a research on vegetables.

### Promotions/Upgrading

Out of the 279 non-teaching personnel of the University, only three were promoted from their position. These three came from the labor force (Table 10).

As a result of the second NCC Evaluation (June 1993 to July 1995) of faculty members, twelve(12) were upgraded vertically (in rank) and 110 were upgraded horizontally (in sub-rank). As an effect of the quota system, 104 faculty members could not be upgraded distributed as follows: University professor – 14, college professor-2, professor-37 and associate professor – 51.

The evaluation result was partially implemented in December 1997. However, due to budgetary constraints/inavailability of savings, the full implementation was held in abeyance.

### The University Library Services

As shown in Table II a total of 498 books, 528 theses, 127 periodicals and five CD ROM, seventeen slides, four cassettes and a total of 72 microfiches were acquired for 1997. Some of these materials were acquired either through purchases, gifts/donations, subscriptions or through exchanges.

As of December 1997, the total volume of books accounted was 30,454 regular book, 7225 theses and 720 periodicals.

For the non-print resources, computerization of library holding using in-house databases for books and theses was done. With this added feature of the library, 24 titles (directories) were encoded from five CDROM. A total of 91 VCR tapes were also acquired during the year.

A total of 1,550 volumes of pamphlets were acquired for the year.

**Table 10. Number of personnel promoted/ upgraded as of 1997**

Promotion/Upgrading	Non-Teaching	Teaching	Total
Promotion	3		3
Upgrading			
- Vertical(in rank)		12	12
- Horizontal(in sub-rank)		110	110
<b>Total</b>	3	122	125

**Table 11. Library materials acquired in 1997**

Library Materials	1997 Acquisition		TOTAL VOLUMES (As of December, 1997)
1. Books		498	30,454
a. Purchases	288		
b. Gifts/Donation	210		
2. Theses		528	7,225
3. Periodical Titles		127	720
a. Subscription	25		
b. Gifts	77		
c. Exchange	5		
4. Non-Print Resources (AV Titles)			
a. CDROM		5	24 titles
b. VCR Tapes			91
c. Slides		17	
d. Cassette tapes		4	
e. Microfiches		72	
5. Pamphlets	56	1,494	

### Internet Services

**Table 12. Number of clients served by the internet services**

Clients	1996	1997	TOTAL	PERCENT(%)
Faculty	62	94	156	66
Students	136	166	302	82
Outsiders	4	14	18	29
<b>Total</b>	<b>202</b>	<b>274</b>	<b>476</b>	<b>177</b>

A year after the installation of Internet services in the University Library, more clients were served compared to the number in 1996. As presented in Table 12, there were 476 served, composed of 156 faculty

members, 302 students and 18 outsiders.

Per record, 1,670 outsiders were accommodated also through open library access.



## Research

### Crop Improvement and Seed Technology

The development of processing potatoes is one of the major thrusts of crop improvement in the University. Based on yield, resistance to blight and processing qualities, ten (10) clones were selected for evaluation in advanced yield trials. Two (2) cultivars are now being multiplied for promotional trials in different locations and four (4) cultivars are undergoing on-farm testing for variety release in three sites in the highlands.

Promising new lines/varieties were also selected for **garden pea** as well as in **pole, bush and field beans**. Six (6) promising entries were also identified in **chrysanthemum** and in rose while two new and promising **strawberry** cultivars are currently being multiplied. Promising cultivars of **taro** (two) and **cassava** (five) are being maintained and multiplied in the field for further testing.

Five promising test entries of **rice** were identified in wet and dry season trials for cool, elevated areas in the Cordillera. In **apple**, six varieties, namely, Rome Beauty, Dorset Golden, Ana, Prince Noble, Cahort #1 and Water Banana were selected due to their excellent adaptability and good yield potential in on-farm trials in Benguet and Mountain Province.

For seed production, the application of 100-100-100 kg NPK/ha accelerated **carrot** flowering without adversely affecting the number of secondary umbels to make it the most economical rate for carrot mother plants.

### Tissue Culture and Mass Propagation

The mass propagation activities included the establishment of mother plants for 25 varieties, initiation of five varieties and the proliferation and



*Garden peas, bush beans and chrysanthemum (top to bottom)*





rooting of 31 varieties of **chrysanthemum**. Different **potato** cultivars with processing potential were also mass-propagated *in vitro*. New varieties of **liliums**, **callas**, **strawberry** and **banana** have been propagated *in vitro* and successfully acclimatized under greenhouse conditions.

Suitable media for **callas**, **liliums**, **asparagus** and **strawberry** have been formulated while protocols for **rose**, **gladiolus**, and **anthurium** are still being determined. Several cultivars of the above species are undergoing different stages of micropropagation, such as initiation, proliferation and rooting in various media formulations.

A limited number of colored **calla**, **strawberry** and **banana** plantlets were released to selected individuals and other interested parties for field testing the true-to-typeness of the *in vitro*-derived plants. In **strawberry**, a field test showed tissue-cultured plants outyielding traditional plants by 5.8 kg/10 m<sup>2</sup> or the equivalent of 4.6 t/ha.

### Biological Control and Integrated Pest Management

Biological control researches provided significant results. Cysts from soil samples collected from potato-growing areas in Atok and Buguias, Benguet and Bauko, Mt. Province were isolated

and counted; five (5) fungal and two (2) bacterial antagonists were noted.

A bioassay screening test showed that 11 rhizobacterial isolates showed potential against **Fusarium wilt** of garden pea although only nine were found effective under greenhouse conditions. Verification trials are underway both in the greenhouse and in the field. Four plant extracts were also found effective against the *Fusarium* fungus. These are *Ap-apiit*, *Psidium guajava*, *Piper betle* and *Rosmarinus officinalis*.

Against *clubroot* infection in crucifers, six of 50 rhizobacterial isolates were found effective under greenhouse conditions but further studies reduced this to only three which are now being re-evaluated to confirm their efficacy. Guava and *ap-apiit* extracts similarly showed good potential in controlling clubroot.

Two natural enemies of aphids attacking **chrysanthemum** were identified. These were *Melochilus sexmaculata* and *Coelophora inequalis*. Another still unidentified bug, a wasp (*Binodoxys communis*) and a fungus (*Zoopthora radicans*) were found to be predators of aphids in chrysanthemum.

Three antagonistic rhizobacteria were isolated from fifty-five soil and root samples taken from different farmers' fields planted to garden pea, beans and lima bean. They are now being tested in bioassay and greenhouse conditions.

Two diseases of mums, tentatively classified as *Fusarium* wilt and septoria leaf spot, were noted in a survey of Bacolod chrysanthemum growing areas while a new and still unidentified disease was detected in the Baguio-Benguet area. Pathogenicity tests and transmission studies are being done to determine the etiology of the disease.

Two hyperparasites of white rust were isolated. Both are still in the process of proper identification. Hyperparasite 1 has been found to



be compatible with at least one fungicide and 5 insecticides while the potential of the other one to control white rust is presently being validated.

The Integrated Pest Management (IPM) researches in selected crops involved the use of natural enemies or antagonists, use of trap colors and chemicals like fungicides and insecticides, and the use of resistant varieties.

The application of 10 t/ha of BSU-formulated compost reduced bacterial wilt infection by 96.2% while the application of 12 kg/ha of powdered bleach reduced bacterial infection by 100%.

### Postharvest

Simple soaking of broccoli curds in water or in ascorbic acid for 24 hours minimized discoloration and weight loss during the second and third days of holding. In carrot, the use of packaging materials, such as the commercial wax preparation, delayed rotting for six days while in Chinese cabbage, the application of 15% alum at the butt end delayed rotting of heads by 2.5 days.

In potato, the practice of prolonging the in-ground storage was found to be not advisable since it results in high weight loss and a general decrease in dry matter content.

### Farming Systems

Cropping system researches were focused on development of market-oriented schemes, prevention of soil erosion and water run-off and use of organic fertilizers for sustainable farming. Intercropping and covercropping chayote with passion fruit under pine trees and coffee trees successfully prevented soil erosion and water run-off aside from significantly increasing the yield of both coffee and intercrops. The use of *Alnus japonica* as a hedgerow resulted in the reduction of soil loss and the increased infiltration of water into the soil.

The use of pig manure, mushroom compost, garbage ash, chicken manure and sunflower plus farmyard manure compost in the production of taro, sweetpotato, onions and even garden pea was satisfactory. Caution is to be made, however, when contemplating on continuous use of these organic fertilizers since they were found to contain not only beneficial microorganisms, like *Trichoderma*, but also pathogenic microorganisms, such as *Fusarium*, *Penicillium*, *Rhizopus* and *Aspergillus*.

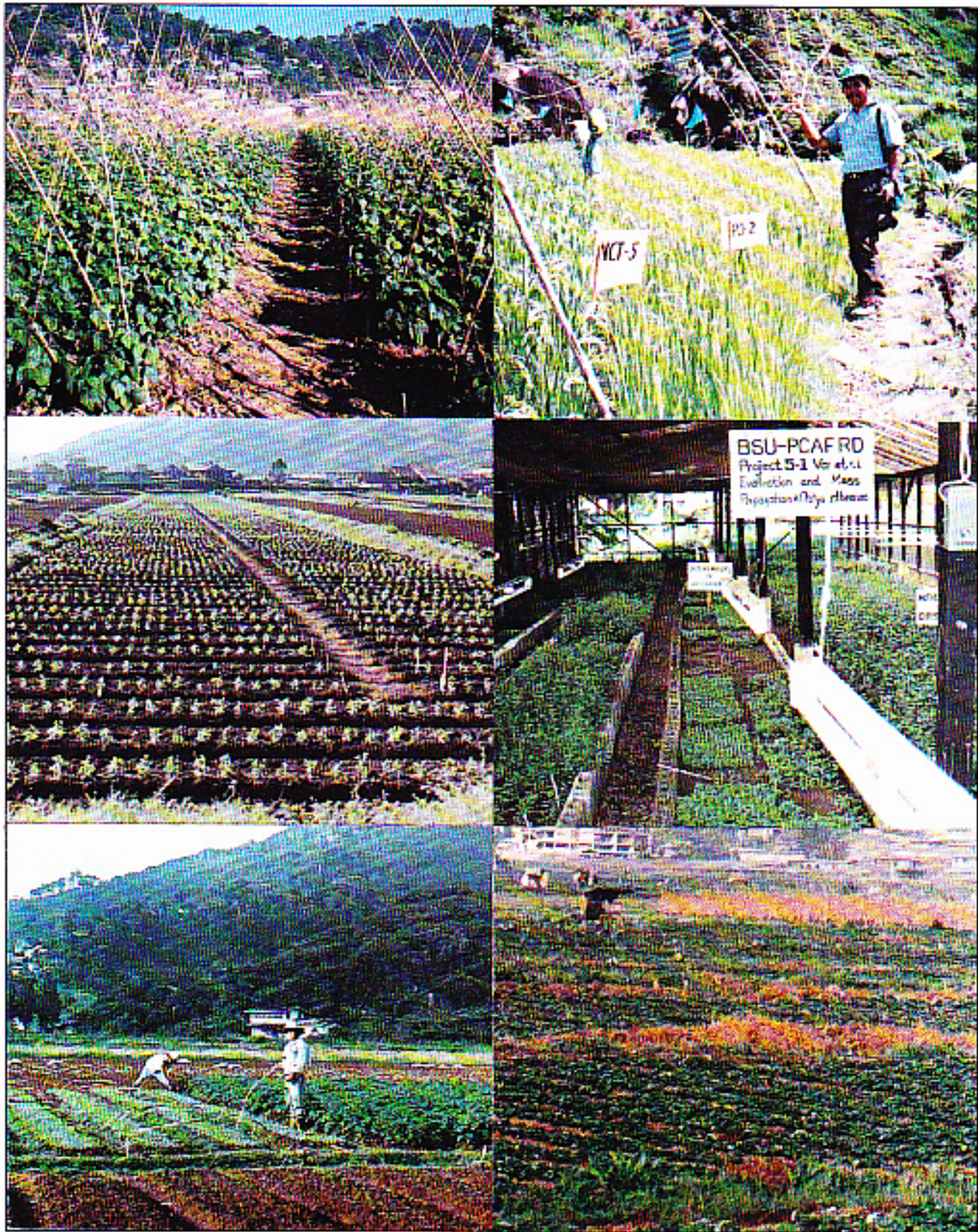
### Socio-Economics and Product Development

The completed profile of potato-producing municipalities in the Cordillera together with the potato investment profile was submitted to NEDA. The formal lending institutions in Baguio City and the five municipalities (La Trinidad, Kibungan, Mankayan, Bakun and Atok) of Benguet were completely enumerated. Sweet potato hands-on chip processing trials were conducted through the savings generated from the home-garden project.

Two step-wise blanching were found to improve the texture and color of potato. New products from potato starch was satisfactorily tested. It can be prepared as polvoron, maja, and as binders in meat loaf and sausage or, as an extender in meat-based products such as lumpia.







*RESEARCH and PRODUCTION. In collaboration with the other functions of the University (i.e. Instruction, Research Extension and Production) goes hand in hand for optimum satisfaction of the general public.*



*MEETING WITH HON. ANGELO C. ALCALA (extreme right). Members of the BSU Board of Regents and some SUC-CAR Presidents converge at BSU for a rare joint board meeting.*



*MEETING: Dean Jose R. Avila of the College of Home Economics and Technology (left) takes a breather after presenting the Barangay Integrated Development Approach for Nutrition Improvement (BIDANI), with Municipal Mayor of Ilogon and barangay officials of Nueva Ecija.*

*SYMPOSIUM on GRAFT and CORRUPTION. Ombudsman Aniano Diserto (center) being introduced by BSU Pres. Cipriano C. Consolacion to faculty, staff, students and guests.*



## Extension



Through the joint efforts of the College of Nursing and UK Volunteers, domestic water supply is now available at sitio Balucas, Shilon, La Trinidad and Abiang, Atok., Benguet. Dr. Domingo Q. Casivan was instrumental in the arrival of the volunteers.

### Field releases of *Diadegma semiclausum* for control of DBM

A total of 44,710 *Diadegma semiclausum* were distributed during the year in review. The bulk thereof was released in various commercial cabbage-producing towns of Benguet for control of the diamondback

moth. Other agriculture agencies in the lowlands and some research institutions, like UPLB, were also provided with the predator as requested.

Planted 130 suckers and 535 tissue cultured banana plants were distributed in various pilot banana production sites in Benguet.

Plantlets of the BSU-developed varieties, BSU-PO<sub>3</sub> and BSU-PO<sub>4</sub>, have been dispersed to the Baguio National Crop Research and Development Center (BNCRD), International Potato Center (CIP), SMAR, University of Southern Mindanao (USM), Northern Samar, Thailand and Nepal.

**The Extension Research on the Inter-Agency Promotion of Sweetpotato Households and School Gardens** of the University's Root Crops Center was chosen as a case study in the Users' Perspective with Agricultural Research and Development (UPWARD) mega-project. The project approach with strong users' participation and influence were training, seminars or workshops, provision of free planting materials, and inter-agency participation particularly in terms of technology diffusion, exchange of knowledge, gathering of innovations and adoption feedback. The sweetpotato gardening concept was integrated in the food production programs of schools, mothers' classes, nutrition month celebration, *edukasyong pantahanan at pangkabuhayan* (EPP) subjects, sweetpotato bio-intensive gardening lectures, livelihood projects and tree planting activities.

### Agri-School-on-the-Air

The University, through the Office of the Director of Extension (ODE), started **Agri-School-on-the-Air** during the year in review.





The program, aired regularly over a local radio station uses specialists as lecturers/broadcasters. It covers not only topics on crops, livestock and fisheries but also health and nutrition issues. The response to the program is very encouraging based on the number of the listeners, who are mainly farmers from Cordillera, contacting or coming to the ODE.

To backstop the program, the lectured modules were printed and distributed to the listeners as reference materials. At least nine(9) of these modules on various crops are now part of the information, education and communication campaign of the University.

### **Technology Piloting and Commercialization**

Six(6) technologies were piloted with nine groups of small and medium scale agribased enterprises (SMEs) in different municipalities of Benguet, Mountain Province and in Aringay, La Union. The technologies are the following:

1. Shiitake mushroom production in alnus logs and sawdust bags;
2. Sweetpotato production using a new variety;
3. Swine production;
4. Garden pea production using a new variety;
5. Production of high-value vegetables

through integrated soil revitalization management; and

6. Use of non-conventional approaches to seed potato production.

Funding for this was provided by the Technology Application and Promotion Institute (TAPI)-DOST.

New demo farms for vegetables and cutflowers were also set up on the campus.

### **Training and Outreach Activities**

As a vital component of its extension activities, more than 70 various trainings, seminars, and workshops were conducted by BSU alone or in collaboration with other government or non-government organizations and private individuals. All eight colleges of the University had a fair share of these activities.

An important outreach arm of the University is the BSU-Affiliated Non-Conventional Energy Center (ANEC), which was again duly recognized by the DOE as one of the top five ANECs in the country.

BSU-ANEC implementation demonstration projects on non-conventional energy system were set up not only in the CAR provinces but also in Nueva Ecija.





The University also undertook dispersal of cattle, forest trees, coconut, pigs and *Diadegma* in various towns of the Cordillera, specially in Benguet.

The BSU – Agroforestry Support Program for Empowering Communities Towards Self-Reliance (ASPECTS) and the BSU-Barangay Integrated Development for Nutrition Improvement (BIDANI) were likewise important outreach arms of the University in several towns and barangays of Benguet.

A collaborative project among BSU, SAFEWATER (a peoples organization) and an NGO was launched in San Roque, Pangasinan. This is the BSU Comprehensive Site Development Forest Land Management Agreement (BSU-CSD-FLMA). The site could be used by BSU forestry students for their practicum and their information education campaign.

## Production

As mandated by National Memorandum Circular, the University initiated and assisted the improvement and expansion of home industries and agribusiness projects for self-sufficiency.

### FUND 163

Generally, Fund 163 pertains to auxiliary projects of the University. The sources of funds came from the national government and all income derived from its operation is reverted back to the National Treasury.

The year's, sub-total income of P1,039,743.16 (Table 13) was used in the renovation, and repair of the Men's and Ladies' dormitories.

### FUND 161

On the other hand, Fund 161 are food production projects. Income derived, therefrom formed part of the savings of the University. Other existing food production projects, like the poultry, floriculture, and mushroom, were not reflected in the table due to renovations, management turn-over, and temporary closure. Fund 161 generated a net income of P1,538,189.38.

Nevertheless, a grand total of P2,577,932.54 was obtained from the operations of Fund 163 and 161. Other incomes amounting to P436,600.00 were realized from space/stall rentals.



*CARROT as source of health drink, poised for possible mass commercialization.*



*Potato, one of the major vegetables and a flagship crop of the University.*



Table 13. Summary of income generating projects, 1997

NAME OF PROJECT	GROSS RECEIPTS (Peso)	EXPENSES (Peso)	NET INCOME (Peso)	REMARKS
<b>FUND 163</b>				
Cafeteria	5,721,792.70	5,183,273.55	P538,519.15	
High School Canteen	267,840.58	234,334.18	33,506.4	Started August 1997
Engineering Canteen	571,624.52	460,851.50	110,773.02	
Guestel/Home Management and Executive House	485,022.68	-	485,022.68	
CHET Showcase	190,127.45	74,760.95	115,366.50	Full operation, January 1997
Veterinary Clinic	9,675.00	-	9,675.00	
Ladies' Dormitory	179,535.00	210,693.57	(31,158.59)	Negative results were incurred due to major repairs and purchase of equipment.
Boys' Dormitory	62,700.00	284,661.00	(221,961.00)	Negative due to repairs and purchase of equipment.
<b>Sub-total</b>	<b>7,488,317.93</b>	<b>6,448,574.77</b>	<b>1,039,743.16</b>	
<b>FUND 161</b>				
Food Processing	2,629,205.35	2,045,939.92	583,265.43	
Bakery	1,618,600.45	1,292,245.76	326,354.69	
Pomology	21,728.00	8,616.50	13,111.50	
Swine Project	312,047.00	235,088.00	76,959.00	
Strawberry (one hectare)	90,690.00	-	90,690.00	Partnership scheme
Multi-Vegetable 1996-1997 (2 hectares-Balili)	719,962.00	437,140.24	282,821.76	
Agri-Forestry	164,987.00	-	164,987.00	
<b>Sub-total</b>	<b>5,557,219.80</b>	<b>401,9030.42</b>	<b>1,538,189.38</b>	
<b>Total (F161 + F163)</b>			<b>2,577,932.54</b>	
<b>Others</b>				
Summer Variety Store	192,250.00	-	192,250.00	Administration Dec. 96-May 1997, 30 stalls
Strawberry Stalls-Swamp	103,200.00	-	103,200.00	
Vegetable Stalls Swamp	141,150.00	-	141,150.00	38 stalls
<b>Sub-total</b>	<b>436,600.00</b>	<b>-</b>	<b>436,600.00</b>	

Source: University Business Affairs Office



At P6.00 per square meter and by area of designation a total school share of P1,684,241.10 was collected from an aggregate area of 280,706.85 sq.m. of the University's farm-production sites.

To augment the money income of BSU employees, the Sariling-Sikap was made available to qualified applicants provided that they attend to their respective area of operation before or after office hours or during Saturdays, Sundays and other non-working days.

Some areas were tilled also by outsiders



*SWAMP AREA. This production areas of the University has augmented income of farmers, faculty, staff as well as students.*

(farmer-cooperators) for purposes of establishing inter-community partnership and development.

The Supervised Farming Program (college and high school) served as a training ground for agriculture students as well as agricultural education students. Upon remittance

of the school share, whatever profit they (students) gained accrued to the college as their independent savings.

Moreover, these farming activities was governed by memoranda of agreement.

**Table 14. Summary of school share on land use, 1997-98**

Name of Project	Area(sq.m.)	Amount Collected
1. Sariling Sikap - Swamp Area	59,832.67	358,996.02
- Backyard	18,087.45	108,524.70
2. Farmer Cooperators - c/o Salbino Bangcado	85,462.19	512,773.14
3. Supervised Farming Program		
3.1 College Level - College of Agriculture	21,868.93	131,213.58
3.2 College of Teacher Education	21,937.20	131,623.20
High School Level - First year	20,054.09	120,564.54
- Second Year	17,824.29	106,945.74
- Third Year	16,422.51	98,535.06
- Fourth Year	19,177.52	115,065.12
<b>Total</b>	<b>280,706.85</b>	<b>1,684,241.10</b>

Source: University Business Affairs Office



*Field Visitation: Pres. Consolacion (left most) with North Quad Commissioner Atty. Hermingildo Dumlaog and prospective Japanese strawberry investors.*





*GENUINE BSU PRODUCTS are now available in commercial packages.*



*Recycled tires for ornamental plants or other purposes as part of waste management and as source of income.*



## Financial Resources

For Calendar Year 1997, the total expenditures of the University is P115,948,000.00. The break-down of expenditures are as follows:

EXPENDITURES	AMOUNT
<b>A. Personnel Services</b>	
Salaries of Permanent Positions	P 65,564,000.00
Contractuals, Casuals and Emergency Personnel	1,116,000.00
Substitute Teachers	115,000.00
Other Compensations	22,930,000.00
Retirement and Life Insurance Premiums	5,998,000.00
	-----
Total Personnel Services	P 95,773,000.00
<b>B. Maintenance and Other Operating Expenses</b>	
Travel Expenses	P 671,000.00
Communication Services	177,000.00
Repair and Maintenance of Government Facilities	335,000.00
Repair and Maintenance of Government Vehicles	346,000.00
Supplies and Materials	3,162,000.00
Grants, Subsidies and Contributions	516,000.00
Water, Illumination and Power Services	1,657,000.00
Social Security Benefits, Rewards and Other Claims	4,672,000.00
Training and Seminar Expenses	175,000.00
Extraordinary and Miscellaneous Expenses	94,000.00
Gasoline, Oil and Lubricants	27,000.00
Other Services	4,040,000.00
	-----
Total Maintenance and Other Operating Expenses	P 15,872,000.00
<b>C. Capital Outlays</b>	
Land and Land Improvement Outlay	P 2,254,000.00
Buildings and Structures Outlay	2,049,000.00
	-----
Total Capital Outlays	P 4,303,000.00
	-----
<b>TOTAL OBLIGATIONS</b>	P 115,948,000.00
	-----



## Other Accomplishments

### Completed Infrastructure and Physical Structures

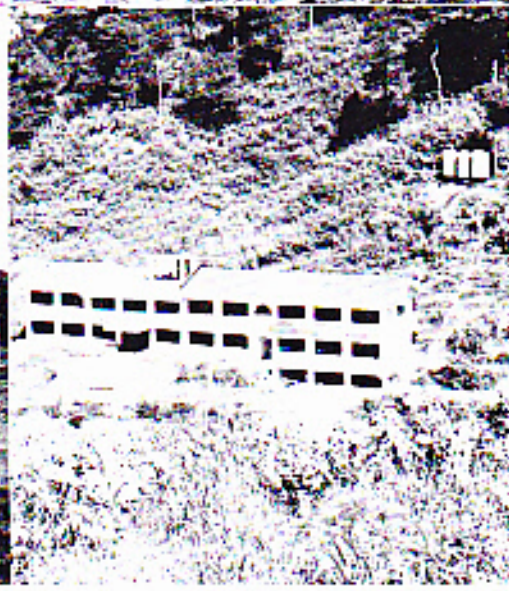
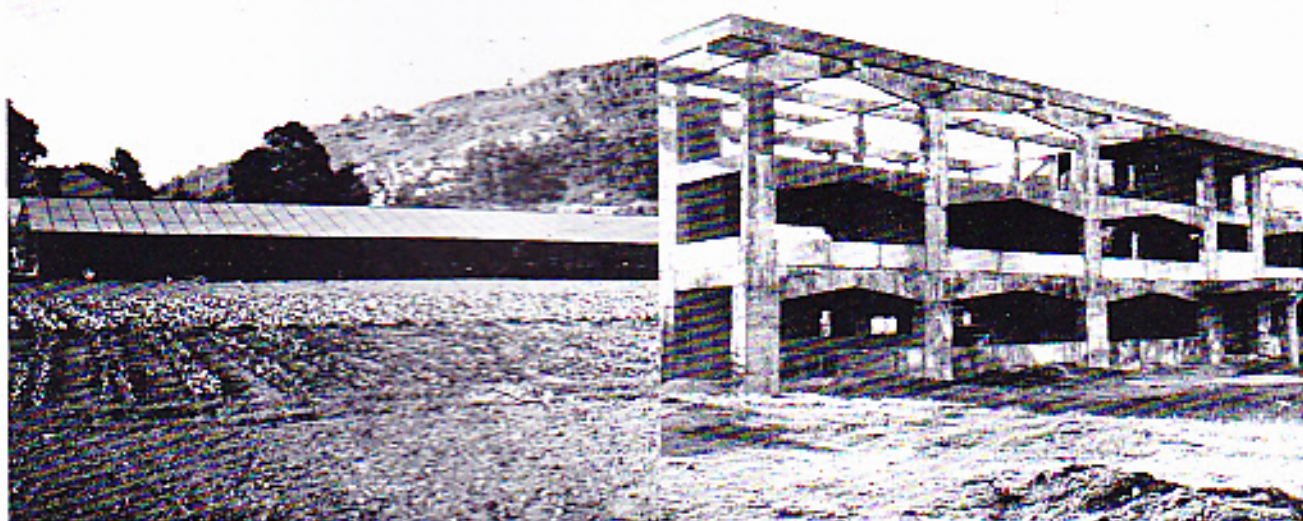
In support of the functions of the University, infrastructure projects were implemented by the administration, namely:

	Name of Project	Project Cost	Source of Fund	Remarks
1.	Continuation of College of Nursing Building – Phase IV	P2,543,340	Capital Outlay	Completed, Nov. 1996 to June 3, 1997
2.	College of Arts and Sciences Building Phase II	1,715,400	Capital Outlay	Completed Nov. 96-March 97
3.	College of Forestry Phase II	1,364,200	Capital Outlay	Completed Nov. 96-June 97
4.	Dormitory and Commercial Level - Phase II	139,591	Capital Outlay	Completed Nov. 96-June 97
5.	Greenhouse	1,500,000	PCARRD	Completed Feb. 97-Apr. 97
6.	Guest house (HARRDEC)	742,660	PCARRD	80% completed, June 97 – Dec. 97
7.	Gate 4	150,000	Administration	Completed
8.	Warehouse (BODEGA)	1,500,000	Administration	90% completed June 97 – Nov. 97
9.	Multipurpose Hall	900,000	Administration	Completed, Aug. 97-Dec. 97.

### Other Physical Structures Completed for the Year (1997)

1. Repair/improvement and maintenance of classrooms, offices, cottages, library, poultry houses, dormitories, guest house, greenhouses, laboratory rooms, barns, and other University buildings
2. Continued the construction of the warehouse building
3. Construction of fixtures, furniture for the different offices of the University
4. Installation/construction of drainage canals, pipe lines, and electrical wiring of some offices
5. Repair of destroyed University roads





*INFRASTRUCTURES. (left to right) Greenhouse, College of Nursing Phase II, Storeroom, New College of Forestry and the on-going multi-functional building.*





*YEARLY LUNCHEON. Faculty members, staff and friends share the spirit of Christmas in a simple "salo-salo."*

*MS. CORAZON Y. BELVIS, (right) the out-going State Auditor receiving a token from Pres. Consolacion. Assisting is Dr. Rogelio D. Colting, Vice President, Research and Extension.*



*KAPIHAN. Pres. Consolacion, leads administrative officials in presenting the plans, goals and accomplishments of the University to print and broadcast media personnel.*



## Linkages

The following are the list of agencies institutions, foundations and associations which were linked to the University in 1997.

### International

- |   |  |
|---|--|
| 1. Asian Development Bank                 | 10. University of Queensland, Australia    |
| 2. International Potato Center            | Edinburgh                                  |
| 3. International Rice Research Institute  | 11. University of Ghent, Belgium           |
| 4. Japan International Cooperation Agency | 12. Sangju National Polytechnic University |
| 5. HELP-SCOTLAND-University of            | 13. United Nations Development Program     |
| Edinburgh Scotland                        | 14. Australian Center for International    |
| 6. Plan International                     | Agricultural Research                      |
| 7. Oklahoma State University              | 15. John Hopkins University                |
| 8. Dr. Dong Sup Lee Foundation            | 16. University of Hongkong                 |
| 9. Switzerland Embassy                    |  |

### Local

1. ATI-NTC and DA-CARFU – II
2. Allied Botanical Corporation
3. AGPI Engineering
4. BAYER-PHILIPPINES
5. DA- Bureau of Plant Industry
6. DA- Bureau of Post Harvest Research and Extension
7. DA- Bureau of Soils and Water Management
8. DA- Philippine Rice Research Institute
9. Department of Agriculture – Bureau of Agricultural Research
10. Department of Agriculture – Cordillera Administrative Region (DA-CAR)
11. CLSU-BIDANI
12. Cordillera Executive Board
13. Country Club of Baguio
14. Copper Kettle at Camp John Hay (CJH)
15. DDE
16. Department of Trade and Industry
17. Department of Energy
18. Department of Environment and Natural Resources
19. Department of Science and Technology- Cordillera Administrative Region (DOST-CAR)
20. DOST – Philippine Council for Agriculture, Forestry, Natural Resources



- Research and Development
21. DOST – Philippine Council for Aquatic and Marine Resources  
Research and Development
  22. DOST-Philippine Council for Advance Science and Technology  
Research and Development
  23. DOSTTAPI- Philippine Textile Research Institute
  24. FAPE
  25. HARBEST Agribusiness Corp.
  26. HEDCOR
  27. Local Government Units
  28. Land Bank of the Philippines
  29. Mario's Restaurant
  30. National Economic and Development Authority
  31. Non-Government Organizations
  32. National Nutrition Council
  33. PARRFI
  34. Philippine Orchard Corp.-PHILOR
  35. Pro-Green Philippines
  36. Philippine Root Crops Research and Training Center
  37. Pilipinas Shell Foundation
  38. Schreurs - Amsterdam
  39. Skyrise Hotel
  40. St. Luke's Hospital
  41. SUC's in CAR & Region I
  42. UPLB-IPB
  43. UP-Baguio Cordillera Studies Center
  44. UPCBED FOUNDATION
  45. UPLB-BIDANI
  46. UPLB-RTP-FNP
  47. Women's Studies Association



→ Part of car donations to BSU from Miyagawa Company of Japan.



## Future Thrusts

Due to the changing economic and social landscape in the region, and the concomitant need for new, relevant degree courses, the University will be constrained to pursue the following future thrusts:

1. Offering of new and relevant undergraduate (e.g., Tourism, Development or Mass Communication) and graduate (e.g., Ph.D. in Agronomy, Animal Science, Plant Pathology and Soil Science), courses within the next five years. Such courses will not be a duplication of what are being offered by the higher institutions of learning in the locality;
2. Continuous faculty and staff development program in order to carry out the functions of the University in a more efficient way;
3. Continuing procurement and upgrading of equipment and facilities;
4. Strengthening the information technology system in the University since this is an important tool of instruction and research;
5. Full operationalization of the different research centers/institutes of the University to hasten the development of new technologies that are attuned to the changing needs of Cordillera Administrative Region (CAR) in particular;
6. Forging of new linkages with national or international agencies/institutions to realize or fast-track the University's goals;
7. Create and develop more interface activities between research and extension for the adoption of the University-developed or other relevant technologies by the concerned clientele;
8. Intensification of existing IGPs and setting up of new ones to generate more income for the University, thereby helping it to sustain its diversified programs.



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6. BAGANO, Juliet P. *Coordinator, Open University*
7. BALAKI, Edwin T. *Director, Extension Services*
8. BALWEG, Bienvenido M., *Director, Publications and Media Services*
9. BASCO, Mabel E. *Chief, Internal Audit Services*
10. BELVIS, Corazon Y., *Resident Auditor (COA)*
11. BENGWAYAN, Grace T., *University and Board Secretary*
12. BUSTAMANTE, Anselmo F., *ROTC Commandant*
13. CALORA, Feliciano G., Jr., *Dean, College of Forestry*
14. CFLINO, Sonia M., *Chairperson, Elementary Education Training Department*
15. CAYANON, Florence C., *Dean, College of Nursing*
16. CHUA, Edna A. *Director of Admissions*
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18. COTIW-AN, Basito S., *Dean, College of Veterinary Medicine*
19. DANGWA, Olga, C., *Special Assistant for Community Affairs*
20. DAYOTAO, Ariel G., *President, Supreme Student Council*
21. DEMOT, Juliet D., *Chief, Property and Supply Management Office*
22. DIMAS, Albert B., *President, Faculty Club*
23. DIMAS, Benjamin B., *Director, Institute of Highland Farming Systems and Agroforestry*
24. ESTEBAN, Emilia M., *Chief, Human Resource Management Office*
25. FORMARAN, Villa L., *Chief, Medical Services*
26. GANGA, Zenaida N. *Director, Highland Agriculture Research and Resources Development Consortium*
27. GARIN, Dominador S., *Dean, College of Teacher Education.*
28. GRANDE, Bobby E. *Information Officer*
29. GUALDO, Rosendo S., *Dean, College of Arts and Sciences*
30. LAPICTO, Eladio O., *Director, General Services*
31. LIMPIN, Oscar B., *Chief, Cashiering Office*
32. LIMPIN, Victoria L., *Chief, Records Management Office*
33. LUMA-ANG, Carlos P., *Chair, Secondary Education Training Department*
34. KEITH, Emma B., *Director, Special Cultural Affairs*
35. MADDUL, Sonwright B., *Dean, College of Agriculture*
36. MALAMUG, John James F., *Dean, College of Engineering and Applied Technology*
37. MANUEL, Josephine B., *Editor-In-Chief, Mountain Collegian*
38. MARQUEZ, Josefina M., *Chief, Financial Management Office*
39. MINA, Wilfredo B., *Director, Student Affairs*
40. PADUA, Danilo P., *Director, Planning and Development Office*
41. PEREZ, Jocelyn C., *Director, Northern Philippine Rootcrops Research and Training Center*
42. RAMOS, Estrella A., *Chief, General Administrative Division*
43. RAPUSO, Mary Joy S. *Chief, Accounting Office*
44. SOLIMEN, Julia A., *Dean, Graduate School*
45. TAGARINO, Darlyn D., *Director, Institute of Highland Policy Studies and Socio-Economic Research and Development*
46. TANDANG, Leoncia L., *Director, Research Services*
47. VICTOR, Priscilla P., *Chief, Budget Office*
48. VILLANUEVA, Luciana M., *Director, Horticulture Research and Training Institute*





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### HON. ARIEL G. DAYOTAO

President, BSU Student Supreme Council  
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University and Board Secretary IV



## APPENDICES

### Appendix 1. Curricular Offerings

#### A. GRADUATE PROGRAMS

1. Doctor of Philosophy (Ph.D.) in:
  - Agricultural Education
  - Horticulture
  - Language Education
  - Rural Development
  - Science Education (Biology and Mathematics)
2. Doctor of Education (Ed.D.)
  - Educational Management
3. Master of Science (MSc.) in:
  - Agricultural Economics
  - Agricultural Education
  - Agronomy
  - Animal Science
  - Biology
  - Botany
  - Entomology
  - Extension Education
  - Horticulture
  - Plant Pathology
  - Rural Development
  - Soil Science
  - Forestry (Silviculture, Watershed Management)
4. Master of Arts (MA) in:
  - English as a Second Language
  - Filipino as a Second Language
  - Home Economics
  - Physics
  - Physical Education
  - Social Services
  - Technology and Home Economics
5. Master of Arts in Teaching (MAT)
  - Applied Statistics      General Science
  - Chemistry                Mathematics
6. Master of Arts in Education (MAEd)
  - Educational Administration
  - Elementary Education
  - Guidance and Counselling
7. Master of Resource System Management (MSRM), Agribusiness
8. Master of Forestry (MF)
  - Silviculture
  - Watershed Management
9. Master of Public Administration (MPA)

#### B. UNDERGRADUATE PROGRAMS

1. Bachelor of Science in Agriculture
  - Major in:*
  - Agronomy
  - Agricultural Economics
  - Agroforestry
  - Animal Science
  - Entomology
  - Extension Education
  - Horticulture
  - Plant Pathology
  - Sericulture
  - Soil Science
2. Bachelor of Science in Agribusiness (BSAB)
3. Bachelor of Science in Agricultural Education (BSAE)
4. Bachelor of Science in Agricultural Engineering (BSAEng'g)
5. Bachelor of Science in Applied Statistics (BSAB)
6. Bachelor of Science in Animal Technology (BSAT)
7. Bachelor of Science in Environmental Science (BSES)
8. Bachelor of Science in Forestry (BSF)
9. Bachelor of Science in Home Economics (BSHE)
10. Bachelor of Science in Nursing (BSN)
11. Bachelor of Science in Nutrition and Dietetics (BSND)
12. Bachelor of Science in Elementary Education (BEE)



13. Bachelor of Secondary Education (BSE)  
*Major in:*  
 Biology  
 English  
 Filipino  
 Guidance and Counselling  
 Library Science  
 Mathematics  
 Physical Education, Health and Music (PEHM)  
 Physics  
 Social Studies  
 Values Education

14. Doctor of Veterinary Medicine (DVM)

#### C. DIPLOMA COURSE

1. Diploma in Agroforestry

#### D. POST-SECONDARY COURSES

1. Certificate in Home Management Arts (CHMA)
2. Certificate in Physical Education (CPE) (Specialization)

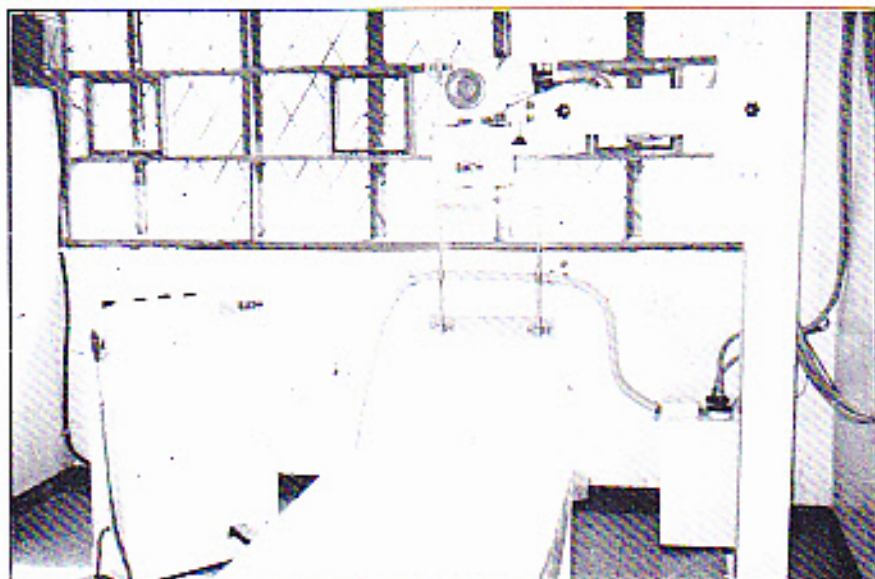
3. One-Year Automotive Technology
4. Two-Year Automotive Technology
5. Six-month Dressmaking
6. Six-month Food Processing
7. Six-month Tailoring Course
8. Five-month Basic Automotive
9. Five-month Advance Automotive Technology
10. Five-month Woodworking Technology

#### E. SECONDARY SCHOOL

1. Special Science
2. Agriculture Home Economics
3. Vocational Agriculture

#### F. ELEMENTARY SCHOOL

1. Primary – Grades I-III
2. Intermediate – Grades IV-VI



*X-Ray machine for animals and human beings, now functional.*



Appendix 2. List of Scholars/Faculty on Sabbatical Leave

NAME	COLLEGES/OFFICE	DEGREE	COLLEGE/UNI- VERSITY	PERIOD OF STUDY	SPONSOR
<b>DOCTORAL DEGREE</b>					
1 ABEN, Silvestre K.	CTE/HS	Ph.D. Horticulture	UWS, Australia	Feb 1995-Feb 1999	ASTAS
2 ANSELMO, Belinda A.	CA	Ph.D. Research	EG D, Israel	Jun 1996-May 1999	JBIDRI
3 ATINWAD, Marlene B.	CA	Ph.D. Animal Science	UPLB	Jun 1995-Oct 1998	BSU Faculty Staff Dev.
4 BUCLO, Gilda	NPRCRIC	Ph.D. Rural Dev't	BSU	Nov 1997-Oct 2000	BSU (Full tuition)
5 BULACSO, Aurora E.	CA	Ph.D. Crop Protection	UPLB	Jun 1997-May 2000	FAPE
6 COMILA, Felipe S.	CTE	DPA-Public Adm.	UP Diliman	Nov 1995-Oct 1998	Mombasha Res.Sch.
7 GOMEZ, Romeo A.Jr.	CAS	Ph.D. Env Sci	Chiba Univ Japan	Oct 1997-Sept 2000	
8 LANDO, Lily Ann D.	CTE/HS	Ph.D. PH Pathology	UPLB	Jun 1995-Oct 1998	
9 LAUREAN, Carlito P.	CA	Ph.D. Soil Science	UP Los Baños	Jun 1995-Oct 1998	
10 LEE, GLORIA R.	CAS	DPA-Public Adm	UP Diliman	Nov 1995-Oct 1998	BSU Faculty Staff Dev.
11 LURIO, Lorenza C.	CAS	Ph.D. App Biology	UG Belgium	Feb.1996-Jan1999	BADC
12 LUBRICA, Joel V.	CAS	Ph.D. Sci Education	UNE,NSW	Jan 1997-Jul 2001	AAID
13 MALAMUG, John James	CEAT	Ph.D. Agril Eng'g	CLSU	Jun 1996-May 2001	
14 MILIO, Victoria C.	CA	Ph.D. Horticulture	CLSU	Jun 1996-May 1999	
15 MULA, Rosana R.	CA	Ph.D. HES/M	UG/UTN	Mar 1996-Feb 1999	CHEC-FAPE
16 OTCULAN, Antonio B.	Research	Ph.D. Horticulture	BSU	Nov 1997-Oct 2000	WOTRO
17 RAMOS, Charito A.	CAS	Ph.D. Crop Science	UNE,NSW	Jun 1995-Jun 2000	BSU (Full tuition)
18 SALDA, VIOLETA B.	NPRCRIC	Ph.D. Agronomy	Univ. of Hongkong	Jun 1995-Dec 1999	ASTAS
19 TACLOY, John C.	CF	Ph.D. Rural Dev't	BSU	Nov 1997-Oct 1999	UH
20 TAD-AWAN, Bernard	CA	Ph.D. Crop Protection	Australia		
21 TALLAYO, Lourdes D.	Admin	Ph.D. Animal Science	CAUF	Jul 1997-Mar 1998	
<b>MASTER'S DEGREE</b>					
1 ARANCA, Reynaldo A.	CN	MD	Virgin Milagrosa	Jun 1997-May 1999	
2 BASALONG, Andres A.	CTE/HS	MS	BSU	Sep 1997-Oct 1998	
3 BELINO, Relin	CHET	MS-Nutrition	UPLB	June 1997-May 1999	CHED-CFDP
4 CASTIBAN, Elvie	CTE/HS	MS	BSU	Sep 1997-Oct 1998	
5 CUANGUEY, Luke E.	CA	MS-Ag Economics	BSU	Jun 1997-Oct 1998	
6 DIEGO, Ruth C.	DVM	MS-Aquaculture	UC Belgium	Oct 1996-Sept 1998	BADC
7 DUGAT, Virginia	Admin	MPA	BSU	Nov.1996-Mar 1998	
8 ESTEBAN, Emilia	Admin	MPA	BSU	Aug 1997-Mar 1998	
9 GARCIA, Judith	CN	MS-HSC	De La Salle Univ.	Jun 1997-May 1998	Ford Foundation
10 RAPUSO, Mary Joy	Admin	MPA	BSU	Nov.1996-Feb.1999	
11 TIANZA, Guerson	CA	MS	BSU	Nov 1997-Oct 1998	
12 VICTOR, Priscilla	Admin	MPA	BSU	Nov.1996-Mar 1998	
<b>SABBATICAL LEAVE</b>					
1 AQUITANIA, Conseria	CAS	Book-Logic Set Theory		Nov 1997-Oct 1998	



## Appendix 3. Summary of Student Scholars, First and Second Semester SY 1997-1998

SCHOLARSHIP GRANT	NUMBER OF SCHOLARS	
	1st Semester	2 <sup>nd</sup> Semester
<b>I. Government Grants/Scholarships</b>		
1. State Scholarship Program (SSP)	3	2
2. National Integrated Scholarship Government Program (NISG)	34	37
3. Selected Ethnic Group Educational Assistance Program (SEGEAP)		
3.1 CAR	28	25
3.2 Pangasinan	1	1
4. Special SEGEAP		
4.1 Benguet	1	3
4.2 Mt. Province	1	4
4.3 Ilocos	1	
4.4 Pangasinan	1	
5. Study Now Pay Later		
5.1 SNPL Plan (regular)	7	7
5.2 Loan Poverty Alleviation Fund (PAF)	2	2
6. Department of Science and Technology (DOST)	22	25
7. Office of the Northern Cultural Communities (ONCC)		
7.1 CAR	9	9
7.2 La Union	1	12
7.3 Ilocos Sur	1	1
8. Poverty Alleviation Fund-Benguet (PAF)	40	37
<b>Sub-total</b>	<b>152</b>	<b>165</b>
<b>II. Private Scholarships</b>		
1. ERAP Foundation, Inc. (EFI)	3	3
2. La Tondena Foundation, Inc. (LTFI)	9	9
3. ZONTA	1	3
4. PNB Foundation, Inc.	1	1
5. Commission on Filipinos Overseas (CFO-DFA)	1	2
6. Dr. Dong Lup See	2	1
7. PAARFI		1
8. KTTI		1
9. Romero Foundation		1
<b>Sub-total</b>		<b>21</b>
<b>III. BSU Scholarships/Grants</b>		
1. Mountain Collegian	13	6
2. ROTC Unit	14	
3. BSU Band	19	1
4. Athletics	45	51
5. BSU-Cordillera Administrative Region (BSU-CAR)	4	7
6. CHED-DILG (PNP)	11	13
7. Employees' Dependents	15	17
8. Barangay/SK Officials	136	141
9. KONIAD II	27	8
10. Siragata and Hari-aya Dance Troupe	24	
11. Dulaang Filipiniana		10
12. Supreme Student Council (SSC)		7
13. BSU Glee Club	30	24
14. Academic Scholars	5	1
<b>Sub-total</b>	<b>344</b>	<b>286</b>
<b>GRAND TOTAL</b>	<b>513</b>	<b>472</b>



## Appendix 4. Completed Researches, 1997

## A. FUNDED BY GOVERNMENT AGENCIES

	TITLE	RESEARCHER	SOURCE OF FUND
1	Documentation of Existing Technologies in Chrysanthemum Production	A. G. Ladilad	DOST-PCARRD
2	Development of Fertilizers/Growth Hormones from Philippine Seaweeds	A.M. Corpuz	DOST-PCAMRD-UP-DILIMAN
3	Investment Potentials in the Cordillera	D.Casiwan/J.Bagano	USAID-NEDA
4	Apple Development Project in the Highlands	B.B. Dimas et al.	BSU
5	Geographic Information System-Land Resource Information(GIS-LARIS)Phase II	R.D. Colting	DA-BSWM-PAO Benguet LGU
6	Awareness and Acceptability of BSU and CAS Mission, Goals and Objectives	A.M. Corpuz/ A.D. Aquitania	
7	Time Series Analysis and Forecasting of Market Retail Prices of Selected Fruit Vegetables	S.Z. Beligan J.S. Ganapao	
8	Effect of Seaweed Extract on Potato Late Blight Induced by <i>Pythohtora Infestans</i>	A.M. Corpuz	
9	Asian Agricultural and Forest Waste for Mushroom Culture	D. Domondon	
10	In-vitro Propagation Studies in Chrysanthemum ( <i>Dengranthema grandiflora</i> Tzvelev)	M.A. Balcita	
11	Morphological and Semantic Analysis of Gay Vocabulary	E.R. Hufana	
12	Utilization of the Benguet State University Ethnographic Library	E.B. Keith	
13	Screening of Rhizobium strains for Biological Nitrogen Fixation	D.P. Padua	BSU-RUG
14	Screening of Bean Germplasm for Biological Nitrogen Fixation Potential	D.P. Padua	BSU-RUG
15	Effect of Soil pH on Nodulation in Common Bean-Rhizobium Symbiosis	D.P. Padua	BSU-RUG
16	Vegetable Seed Production Technology Development Program: Carrot	RE. Toledo et al.	
17	Study on Intercropping and Cover-Cropping in Coffee-pine Based Agroforestry Systems	B.B. Dimas	
18	Azolla Research and Development Project	T.M. Merestela et al.	
19	Socio-Economic Studies in Highland Agriculture and Natural Resources	L.C. Debad et al.	
20	Rice Research in Cool Elevated Areas in CAR	M.D. CADATAL	BSU-PHILRICE-DA
21	Multi-location Trials for Coffee and Cacao Hybrids	B.B. Dimas et al.	



## Appendix 4. Completed ..(Continued)

## B. FUNDED BY PRIVATE COMPANIES

	TITLE	RESEARCHER	SOURCE OF FUND
1	Evaluation of American Chemical Products Against Major Insect Pest of Cabbage	B.S. Ligat	CARFI
2	Efficacy Test of Alphamine Folira Fertilizer on Potato	M.M. Marquez	Harveson Inc.
3	Activity of Ascen Against Pests of Asparagus	E.V. Cardona, Jr.	Rhone-Poulenc
4	Field Evaluation of Thiram WG Against Major Disease of Cabbage and Other Crops in the Highlands	S.P. Milagrosa E.T. Balaki	PRO-GREEN
5	Field Evaluation of American Cyanamid Company Coded Compounds Against Gray Mold of Strawberry and Diseases of Other Economically Important Semi-Temperate Crops	S.P. Milagrosa	CARFI
6	Efficacy Evaluation of Zuellig Products	S.P. Milagrosa	ZUELLIG-PHARMA
7	Efficacy Evaluation of CARFI Fungicides	S.P. Milagrosa	CARFI
8	Further Evaluation of Organic and Foliar Fertilizers	E.V. Cardona, Jr.	PHILOR
9	Efficacy Test of 16-16-8-85 on the Yield Performance of Potato cv. Granola	J.G. Balaoing	
10	Evaluation of New Compounds for the Control of Late Blight in Potato	L.M. Villanueva	Bayer, Phil. Inc.
11	Evaluation of New Compound for the Control of Late Blight in Tomato	L.M. Villanueva	Bayer, Phil. Inc.
12	Varietal Evaluation of Cabbage	L.L. Tandang	Harbest Ag. Corp.
13	Variety Trial of Highland Vegetables and Raddish and Pechay Seed Development	M.D. Cadatal	Allied Botanical Corp.
14	Verification Trial of Mirasoil, Mirade Booster and ANAA on Different Vegetable Crops	J.S. Ligat	PHILOR
15	Evaluation of Alternate Insecticides for the Management of Major Insect Pests of Selected Highland Crops	L.M. Colting	Bayer, Phil. Inc.



**Appendix 5. List of On-Going Research Programs/Projects at BSU***1. The twenty-two (22) BSU-funded research programs/projects*

<b>CENTER/INSTITUTE/COLLEGES</b>	<b>PROGRAMS/PROJECT/FUNDING SOURCE/RESEARCHER/S</b>
A. HORTI (10)	Vegetable Seed Program Technology Development Program (R.E. Toledo et al.)
	Tissue Culture Research and Development Program for Highland Crops (N.R. Palispis et al.)
	Integrated Cabbage Research and Development Program (R.B. Alipit et al.)
	Carrot Integrated Research and Development Program (R.E. Toledo et al.)
	Garden Pea Integrated Research and Development Program (R.E. Toledo et al.)
	Development of Market-Oriented Cropping Schemes for Vegetables (R.B. Alipit et al.)
	Crop Protection Studies in Selected Plantation Crops (B.S. Ligat et al.)
	Rose Integrated Research and Development Program (A.G. Ladilad et al.)
	Highland Mushroom Research and Development Program (J.S. Luis et al.)
	Crop Protection and Cultural Management Studies On Strawberry (E.T. Balaki et al.)
B. NPRCRTC (5)	Potato Research and Development Program (Z.N. Ganga et al.)
	Sweetpotato Research and Development Program (Z.N. Ganga et al.)
	Taro Research and Development Program (I.C. Gonzales et al.)
	Yam Research and Development Program (C.G. Kiswa et al.)
	Minor Root Crops Research and Development Program (M.B. Salda et al.)
C. IHFSA and HAFI(6)	Study on Intercropping and Cover-cropping in Coffee-pine Based Agroforestation (B.D. Dimas)



**CENTER/INSTITUTE/  
COLLEGES**
**PROGRAMS/PROJECT/FUNDING SOURCE/  
RESEARCHER/S**

Study on Vegetative Terracing in Agro-forest Areas  
(R.D. Colling)

Integrated Highland Farming Systems Research and  
Development Program (R.D. Colling)

Azolla Research and Development Project  
(T.M. Merestela et al.)

Apple Development Project (B.B. Dimas)

Sheep Production and Development in the Highlands of the  
Cordillera (D.Q. Casiwan et al.)

**D. II IPSSERD(I)**

Socio-Economic Studies in the Highland Agriculture and  
Natural Resources (L.C. Debad et al.)

**2. Outside-Funded Research Programs/Projects**
**A. HORTI**

Mass Rearing and Field Releases of *Diadegma semiclausum* in  
the Highlands/ADB, AVRDC and PCARRD (Prof. E.V.  
Cardona, Jr., Prof. A.F. Bulacso et al.), in coordination with DA-CAR.

Monitoring of IPM-FFS for Highland Vegetables/ADB  
(Prof. A.F. Bulacso and C.D. Abellera)

Biological Control of Major Soil-borne Diseases of Highland Vegetables  
Using Plant Growth Promoting Rhizobacteria (PGPR), Fungal and Bacteria  
Antagonist and Botano-Chemicals/PCASTRD-PCARRD-DOST (Dr. L.M.  
Villanueva, Prof. L.G. Lirio et al.)

Community-based Piloting of Control and Rehabilitation Strategies Against  
BBTO in Northern Luzon/PCARRD-DOST (Prof. B.S. Ligat) in coordination  
with Dr. E. Espino of UPLB and Supt. C.A. Baniqued of BNCRD, BPI-DA.

Evaluation of American Cyanamid Insecticides Against Major Insect Pests  
and Crudifers and Mites on Strawberries/Cyanamid Agricultural Research  
(Prof. B.S. Ligat) in coordination with Dr. Mateo Feriño.

**Chrysanthemum R and D program/PCARRD-DOST**

a. Varietal Evaluation and Mass Propagation of Chrysanthemum (Prof.  
M.D. Alejandro, Dr. L.L. Tandang, Mr. J.D. Boteng and Prof. N.R. Palispis  
et al.)

b. Integrated Pest Management (Dr. L.M. Villanueva et al.)



**CENTER/INSTITUTE/  
COLLEGES**

**PROGRAMS/PROJECT/FUNDING SOURCE/  
RESEARCHER/S**

- c. Documentation of Existing Technologies in Chrysanthemum Production (Dr. A.G. Ladilad, Dr. F.R. Gonzales et al.)

Vegetative Propagation of Selected Highland Crops Using Tissue Culture/PCASTRD-PCARRD-DOST (Dr. M. A. Balcita, Prof. V.D. Alejandro, Dr. J.J. Josue, Prof. A.G. Moldez et al.)

- a. Bioefficacy Test of Kenyi-Bio-Active Organic Foliar Fertilizer on Cabbage and Potato/MING-DA Corporation (Dr. J.S. Ligat).
- b. Bioefficacy Test of Mirasol Organic Fertilizers on Cabbage and Potato/MING-DA Corporation (Dr.J.S. Ligat)
- c. Bioefficacy Test of 6-18-12 Foliar Fertilizer on Potato/MIDG-DA Corporation (Dr. J.S. Ligat)

Field Evaluation of Decis 1.0 EC, Decis 2.5 EC Against Cabbage and Beans Insect Pests/Hoechst Far East Marketing Corporation (Dr. S.P. Milagrosa, Prof. L.M. Colting)

Field Evaluation of Omega 45 EC and Octave 50 WP Against Foliar Diseases of Roses/Hoechst Far East Marketing Corporation (Dr. S.P. Milagrosa, Dr. A.G. Ladilad)

Field Evaluation of Omega 45 EC and Octave 50 WP Against Foliar Disease of Cabbage/Hoechst Far East Marketing Corporation (Dr. S.P. Milagrosa)

Field Evaluation of DE 105 Against Diamondback Moth/DOW Elanco (Prof. L.M. Colting)

Field Evaluation of Autam 75 SP for the Control of Insect Pests of Cabbage/Bayer Philippines, Inc. (Prof. L.M. Colting)

Evaluation of Karate 2.5 EC and Karate LWP Against Major Insect Pests of Cabbage/Jardine Agchem (Prof. B.S. Ligat)

Varietal Improvement of Highland Vegetable Crops/IPB, CA, UPLB, (Dr. L.L. Tandang et al.) In coordination with Dr. R.A. Hautea, Dr. R.G. Maghirang, Mr. B.A. Kebasen et al. of UPLB

Performance of Some High-Value Vegetables (Crucifers, Lettuce, Pepper, Tomatoes, Radish, Carrots, Celery) in the Highlands/Allied Botanical Corporation (Dr.M.D. Cadatal)

Post Harvest Studies on High-Value Crops/DA-CAR, BAR-DA, NPRCRTC, UPLB, BSU ( Dr. E.R. Bayogan, Mr. Joe D. Boleng et al.)



CENTER/INSTITUTE/ COLLEGES	PROGRAMS/PROJECT/FUNDING SOURCE/ RESEARCHER/S
B. IHFSA	<p>Geographical Information System-Land Resource Information System (GIS-LARIS)/Provincial Government of Benguet, BSWM-DA and BSU(Dr. R.D. Colting et al.) in Coordination with Mr. B. Pascua of BSWM and Ms. L. Bentes of LGU-Benguet Province</p> <p>National Azolla Action Program/UPLB (Dr. T.M. Merestela, Prof. J.K. Avila, et al.) in coordination with Ms. S. Sudango of DA-CAR</p> <p>Rice Research in Cool Elevated Areas in CAR-PHILRICE-DA and BSU (Dr. M.D. Cadatal)</p> <p>Assessment, Prevention, Mitigation and Control of Pollution from Agricultural Chemicals-Pesticides/PCARRD-DOST (Prof. A.G. Moldez, et al.) in Coordination with Dr. A. W. Tejada and Dr. L. Varca of NCPC, UPLB</p> <p>Development of Fertilizers/Growth Hormones from Philippine Seaweeds/DOST-PCAMRD (Prof. A.M. Corpuz et al.) in coordination with Dr. N.E. Montano of UP Diliman-MSI</p> <p>Philippine Animal Genetic Resources Conservation Improvement Program (Conservation of the Native Pigs in the Cordillera Project)/JSPS-DOST (Dr. S.B. Maddul) in coordination with Dr. Salcedo Eduardo of UPLB</p>
C. NPRCRIC	<p>Potato Research and Development Program</p> <ol style="list-style-type: none"> <li>1. Development of Processing Potato Varieties in the Philippines (Z.N. Ganga and D.K. Simongo) <ol style="list-style-type: none"> <li>a. Preliminary Yield Trial/IPDP-PCARRD (D.K. Simongo)</li> <li>b. Advance Yield Trial and Processing Evaluation/IPDP-PCARRD (D.K. Simongo)</li> <li>c. On-farm Variety Trials on Processing Potato/BAR (D.K. Simongo, H.L. Quindara and E.T. Botangen)</li> <li>d. Screen of Selected Tuber Families for Resistance to Late Blight and other Pes/BAR (D.K. Simongo and Z.N. Ganga)</li> <li>e. Promotional Trials of Processing Potato Varieties/IPDP-DA (P.A. Dalang and L.M. Pacuz)</li> <li>f. International Late Blight Trial/UNDP (D.K. Simongo)</li> </ol> </li> <li>2. Management of Major Pests and Diseases of Potato (J.C. Perez) <ol style="list-style-type: none"> <li>a. Survey, Mapping and Race Identification of <i>P. Solanacearum</i> and Cyst Nematode/IPDP-PCARRD (J.C. Perez, T.C. Diccion and G.S. Backian)</li> <li>b. Appropriate Crop Rotation Scheme Against Bacterial Wilt/IPDP-PCARRD (J.C. Perez, T.C. Diccion and G.S. Backian)</li> </ol> </li> </ol>



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- c. Verification Trial on the Effect of Lime and Urea on the Suppression of *P. Solanacearum*/IPDP-PCARRD (G.S. Backian and J.C. Perez)
  - d. Biological Control of *P. Solanacearum* Using Antagonistic Organism/IPDP-PCARRD (T.C. Diccion and J.C. Perez)
  - e. Evaluation of Inorganic Chemicals for the Control of *P. Solacearum*/BAR (J.C. Perez)
  - f. Integrated Management of *P. Infestans* in the Highlands/BAR (J.C. Perez and H.B. Torres)
  - g. Survey of A2 maing Type of *P. Infestans*/BAR (J.C. Perez and T.C. Diccion)
  - h. Identification of Races of *P. Infestans* in Potato/NPRCRTC-BSU (J.C. Perez and T.C. Diccion)
  - i. Screening of Segregating Population for Resistance to *P. Infestans* in Potato/UNDP-BAR(T.C. Diccion and Z.N. Ganga)
  - j. Evaluation of Some Indigenous Plant Materials for the Control of IPM in Storage/IPDP-DA (J.C. Perez and E.B. Bayogan)
  - k. Effect of Various Methods of Application of Indigenous Materials Against PTM/NPRCRTC-BSU (J.C. Perez)
  - l. Control of Mealybug (*P. Solani*) on Stored Potato/IPDP-DA (J.C. Perez)
3. Improvement of Potato Cultural Management
    - a. Effect of Maturity on the Processing Traits of Potato/IPDP-PCARRD (L.M. Pacuz and H.L. Quindara)
    - b. Application of Macro and Micro Elements on the Tuber Yield and Quality of Processing Potato/IPDP-PCARRD (L.M. Pacuz)
    - c. Development of Potato-Based Cropping System/NPRCRTC-BSU (L.M. Marquez)
  4. Appropriate Postharvest Technology for Potatoes (E.V. Bayogan)
    - a. Assessment of the Extent of In-Ground Storage of Potatoes/PCARRD-DA (E.V. Bayogan, F.S. Balog-as and J.L. Balagtey)
    - b. Greening Incidence and Quality of In-Ground Stored Tubers at Harvest/PCARRD-DA (E.V. Bayogan and F.S. Balog-as)
    - c. Verification of GA3 and Ethrel Use in Granola Potato/PCARRD-DA (E.V. Bayogan and F.S. Balog-as)
    - d. Survey of Sorting and Grading Practices of Potato/PCARRD-DA (E.V. Bayogan, F.S. Balog-as and J.L. Balatey)
    - e. Evaluation of Appropriate Packaging Materials and Waxes in Potato/PCARRD-DA (E.V. Bayogan and F.S. Balog-as)
    - f. Evaluation of Some Indigenous Planting Materials for the Control of PTM in Storage/PCARRD-DA (J.C. Perez and E.V. Bayogan)



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- g. Control of Mealybugs (*Phenacoccus Solani*) on Stored Potato/PCARRD-DA (J.C. Perez and E.V. Bayogan)
  - h. Assessment of Postharvest Storage Losses Due Mealybug Infestation/PCARRD-DA (T.A. Khayad)
5. Community-Based Enterprise Development on Potato (Z.N. Ganga and H.L. Quindara)
- a. Farm-level Assessment of Potato Production Marketing and Utilization/NAPHIRE (H.L. Quindara and E.T. Botangen)
  - b. Market Research and Productivity/NAPHIRE (J.M. Sim)
  - c. Feasibility Study on the Establishment of a Pilot Potato Processing Plant in Benguet/NAPHIRE
6. Seed Production Project (P.A. Dalang)
- a. Assessment of Potato Variety Adaptation, Diffusion and Seed Supply Management Systems of Farmers in the Cordillera Highlands/NPRCRTC-BSU-CIP(B.T. Gayao et al.)
7. Sweetpotato Research and Development
- a. Varietal Improvement of Sweetpotato for the Philippine Highland (Z.N. Ganga)
    - a.1. National Cooperative Trials on Sweetpotato/BSU-VISCA (I.C. Gonzales)
    - a.2. Community-based Knowledge Systems in Sweetpotato Genetic Resource Management/UPWARD (B.T. Gayao)
  - b. Management of Major Insect Pests and Diseases of Sweetpotato in the Highlands (J.C. Perez)
    - b.1. Screening of Sweetpotato Cultivars for Resistance of Sweetpotato Weevil/NPRCRTC-BSU (J.C. Perez)
    - b.2. Evaluation of Botanical Crude Extracts for the Control of Sweetpotato Weevil/NPRCRTC-BSU (J.C. Perez)
  - c. Sweetpotato-based School and Household Gardens and Extension Project (B.T. Gayao)
    - c.1. Sustaining Integration of Sweetpotato-based School and Household Gardens and Health, Nutrition and Education Programs/UPWARD (B.T. Gayao, J.G. Dati, A.T. Botangen, D.T. Meldoz and J.M. Sim)



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	<ul style="list-style-type: none"> <li>8. Taro and Other Aroids Research and Development (I.C. Gonzales)               <ul style="list-style-type: none"> <li>a. Varietal Improvement of Taro and Other Aroids (I.C. Gonzales)                   <ul style="list-style-type: none"> <li>a.1. National Cooperative Trials on Taro/BSU-VISCA (I.C. Gonzales)</li> <li>a.2. Database on Taro Germplasm Collection and Characterization/NPRCRTC-BSU(J.G. Dati and I.C. Gonzales)</li> </ul> </li> <li>b. Postharvest Technology and Utilization (E.V. Bayogan)                   <ul style="list-style-type: none"> <li>b.1. Verification Study on Storability of Market Taro in NPRCRTC-BSU (E.V. Bayogan and E.T. Botangen)</li> <li>b.2. The Use of Rootcrops in Meat Processing/NPRCRTC-BSU (H.L. Quindara)</li> </ul> </li> <li>c. Farming Systems (W.L. Marquez)                   <ul style="list-style-type: none"> <li>c.1. Rootcrop Based Farm Demo on the Use of Organic Fertilizer/NPRCRTC-BSU (W.L. Marquez)</li> </ul> </li> </ul> </li> <li>9. Yam and Minor Rootcrops Research and Development (V.B. Salda)               <ul style="list-style-type: none"> <li>a. Varietal Improvement of Yam and Other Rootcrops                   <ul style="list-style-type: none"> <li>a.1. Yam Germplasm Collection and Maintenance/NPRCRTC-BSU (C.G. Kiswa)</li> </ul> </li> <li>b. Postharvest Technology and Utilization                   <ul style="list-style-type: none"> <li>b.1. Storability of Yam Treated with GA3/NPRCRTC-BSU (E.V. Bayogan and H.L. Quindara)</li> </ul> </li> </ul> </li> </ul>
D. College of Veterinary Medicine	Defining Problems and Opportunities for Smallholder Pig Production in the Philippines/ACIAR (Dr. B.S. Cotiw-an)
E. College of Engineering and Applied Technology	BSU-Affiliated Non-Conventional Energy Center (ANEC) for the Cordillera Region/DOE (Dr. C. C. Consolacion, Prof. M.V. Capinding, Prof. J.F. Malamug, Prof. E.M. Molintas, Dr. F.G. Calora et al.) in coordination with national ANEC
F. College of Agriculture	Agricultural Technology Education Program (ATEP)/EDPITAF-ADB (Dr. D.P. Padua, Prof. M.B. Walsiyen and M.A. Deponio et al.)
G. IHPSSERD	Investment Potentials in the Cordillera/USAID (Dr. D.Q. Casiwan, Dr.J.P. Bagano, et al.) in coordination with NEDA-CAR and TRP-USAID.
H. Office of the President	Pilot Development of Inland Waters and Fisheries Resources in Taba-ao, Kapangan, Benguet/PCAMRD-DOST(Mr. E.S. Borja and Prof. M.K. T. Dagupan) in coordination with DENR-CAR and DA-CARFU



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