

"MSAC'S FIRST DECADE - THEN and NOW"

TENTH ANNUAL REPORT

MOUNTAIN STATE AGRICULTURAL COLLEGE  
La Trinidad, Benguet

CALENDAR YEAR 1979

BRUNO M. SANTOS  
*President*

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Calendar Year 1979

BRUNO M. SANTOS  
President

Republic of the Philippines  
MOUNTAIN STATE AGRICULTURAL COLLEGE  
La Trinidad, Benguet

April 1, 1980

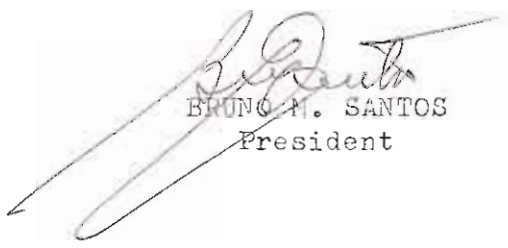
His Excellency Ferdinand E. Marcos  
President, Republic of the Philippines  
Malacañang, Manila

Thru: The Minister  
MEC, Manila

S i r :

I have the honor to submit herewith the Tenth Annual Report of the President, Mountain State Agricultural College, La Trinidad, Benguet, pursuant to the provisions of Republic Act 5923, covering the calendar year 1979.

Very truly yours,



BRUNO M. SANTOS  
President

Copy Furnished:

1. The Honorable Minister of Education & Culture
2. The Members of the Board of Trustees
3. The Officer for State Colleges & Universities
4. PASUC Office, Ministry of Education & Culture

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La Trinidad, Benguet

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## MSAC's FIRST DECADE - AN OVERVIEW

Tenth Annual Report  
1979

### Flash Back

The Mountain State Agricultural College completed its first decade of chartered life as an institution of higher learning in school year 1979-1980. Converted on June 21, 1969 by Rep. Act 5923 into a state college of agriculture, it started its chartered existence in April 1970 with 400 collegiate students and only one college building of 5 classrooms and 4 laboratories available for the exclusive use of the tertiary enrollment. From this very modest beginning, the College has grown into a mature educational institution ready to be converted into an agricultural university.

### Metamorphoses

The first ten years of the College was characterized by substantial development and growth.

1. Instruction - Its academic degree programs expanded from only two curricula in 1970 to seven baccalaureate and one masteral programs in 1979, namely: Bachelor of Science in Education (BSAE), Bachelor of Science in Home Technology (BSHT), Bachelor of Science in Agriculture (BSA), Bachelor of Science in Animal Technology (BSAT), Bachelor of Science in Forestry



(DSF), Bachelor in Agribusiness Management (BAM), Bachelor of Science in Agricultural Engineering (BSAEng.) and Master of Science (MS). These curricular developments were in response to the development needs of Region I and the country as a whole.

Accompanying the growth in collegiate curricula were corresponding growths and improvements in the quantity and quality in enrollments, faculty, non-teaching staff, facilities, resources, instructional and production projects, and infrastructure facilities.

2. Research - The research capabilities of the College grew rapidly from nil to the two and half million peso program that it is today. The College has an internal budget of 1.2 million pesos for research and receives external support from Philippine Council for Agricultural Resources Research (PCARR), National Science Development Board (NSDB), National Research Council of the Philippines (NRCF), Centro Internacional de la Papa (CIP), Institute of Plant Breeding-University of the Philippines, Los Baños (IPB-UPLU), Philippine Atomic Energy Commission (PAEC) and a number of private companies totalling two million pesos, more or less, annually.

RD 1107 made this the site of the NATIONAL AGRICULTURAL RESEARCH CENTER while NAMRU designated it as the HIRSHLAND AGRICULTURAL RESEARCH CENTER for the country.

The CENTRAL AND INTERNATIONAL RESEARCH ON POTATO (CIRP) based in Peru has also chosen ICRAC as the site of a regional training center for white potato research in Asia.

3. Extension - The extension program of the College blossomed from a loosely organized staff without a planned program of activities to a well-organized unit today. The extension staff was formally organized in 1972. The first formal activity launched was the holding of agricultural skills training programs for farmers and their wives and out-of-school children in different rural communities of Benguet. These training programs were conducted originally by three full-time instructor-technicians for a period of six months. From 1972 to 1977 the program was funded by the National Manpower Youth Council (NMTC). This program continues today with funding from Oxford Commission on Famine Relief (OCFR), a London based foundation through Philippine Business for Social Progress (PBUSP). Six full-time instructors are involved and instead of six months, the training now lasts for one year.

With funding from Southeast Asia Regional Center for Graduate Study and Research in Agriculture (SEARCA), ICRAC also established a Social Laboratory in Barangays Lala and Mangolisan of Tubo, Benguet and Barangay Caliano of Aringay, La Union. Four full-time instructors worked for this program from 1974 to 1979.

### The Regional Training Center for Rural Development (RTC-RD)

An integral part of the extension program of the College is the training of extension workers of four government ministries, namely, Ministry of Agriculture (MA), Ministry of Agrarian Reform (MAR), Ministry of Natural Resources (MNR) and Ministry of Local Government and Community Development (MILGCD) for Regions I and III. The program is conducted by a full-time regular staff consisting of a Center Director, seven training specialists, and eight support personnel. Ten to 12 batches of trainees are brought in every year for two weeks of training at two-week intervals. Clientele for this program are farmers, extension technicians, extension supervisors and occasionally middle management personnel of the four ministries enumerated above. This program has been going on for two years now and is funded by contributions of the four ministries serviced through the Philippine Training Center for Rural Development located at UPLE, Laguna.

### The Regional Staff Development Center

Another adjunct of the extension program of the College is the program of summer training for Practical Arts teachers for agriculture, home-making and fishery for Region I. About 60 teachers of practical arts from elementary and secondary schools of ILOC, Region I are brought in for a three-week training every summer..

### Other Training Activities

A number of other specialized training seminars, symposium and work-conference are also annually conducted by ISAC in cooperation with other government agencies. Among these are: at least one training seminar annually on white potato, one on research methodology and statistics, one on animal production and diseases, one on vegetable production and one on non-formal education.

### Agricultural Projects

The most significant development in the agricultural production activities of the College are:

(1) Development of a 200-hectare Agro-Forestation Project using fruit trees intercropped with annual crops starting in 1978. Ten hectares have already been planted and the trees are beginning to bear fruit. Fifteen sacks of pulped coffee beans have already been harvested, and the citrus plants are now flowering. In-charge of this new project is Associate Professor Benjamin B. Dines. This program is being developed as a model for the country. It offers a permanent and acceptable solution to the worsening problems of denudation, erosion and floods. A degree program leading to a Bachelor of Science degree in Agro-Forestry is planned to be developed around this project. Two permanent buildings with two classrooms and two

laboratories and quarters for faculty and students numbering 60 have been constructed in the project and are now ready for occupancy and use.

(2) Establishment of College Demonstration Commercial Farm. The College believes that its credibility in generating and disseminating agricultural technology successfully to farmers and students depends on its ability to produce more and better quality crops and animals than the ordinary farmer. This can be done only by the adoption of commercial production and management practices. To this end the College has been very successful. It has demonstrated on the college farm that vegetable production can bring to the farmer net profits of P1.20 to P2.40 per square meter of land per crop if all the recommended technologies are applied properly and efficiently. In-charge of this program is Assistant Professor Elmo O. Sano.

(3) Another agricultural project that has significantly grown is the Floriculture project under the direction and management of Mr. and Mrs. Ben Eudilad. Starting in 1972 with the assistance of a Japanese Overseas Cooperation Volunteers (JOCV) the project has grown and bringing profits (net income) of P1,000 to 1,500 a month from a half hectare flower farm. The project will be expanded to three hectares shortly.

The extent of growth and development which has taken place during the 1970s (under review) may be gleaned from the comparative profiles of the College in school year 1969-1970 and school year 1979-1980.

HEC's COMPREHENSIVE REPORTS FOR 1969-1970 and 1979-1980

I. No. of academic programs	1970	1980
1. Elementary program . . . . .	0	1
2. Secondary . . . . .	2	4
3. Post secondary . . . . .	1	2
4. Tertiary BS degree programs . . . . .	2	7
5. Graduate degree program (MS) . . . . .	0	1
II. Tertiary degree programs		
1. BS in Agricultural Education . . . . .	yes	yes
2. BS in Home Technology (Ag. Mngg.) . . . . .	yes	yes
3. BS in Agriculture . . . . .	-	yes
4. BS in Animal Technology . . . . .	-	yes
5. BS in Agric'l. Engineering . . . . .	-	yes
6. BS in Forestry . . . . .	-	yes
7. Bachelor of Agric'l. Bus. Mgt. . . . .	-	yes
8. BS in (Agric'l. Educ., Agronomy-- Horticulture, Animal Husbandry, Plant Pathology, Entomology, Agric'l. Eng. and Soils) . . . . .	-	yes
III. Enrollment		
	1204	4631
1. Elementary . . . . .	-	789
2. Secondary General . . . . .	-	473
3. Secondary Vocag. . . . .	452	283
4. Secondary Agric'l. Homecoming . . . . .	293	152
5. Secondary Agric'l. Science . . . . .	-	96
6. Post Secondary . . . . .	22	47
7. Tertiary including BS . . . . .	437	2791
IV. Faculty Strength		
1. Elementary . . . . .	-	33
2. Secondary . . . . .	26	52
3. Tertiary . . . . .	24	125
4. Academic reports of Tertiary faculty only . . . . .	-	-
a. Part-time . . . . .	-	12
b. Lectures . . . . .	6	46
c. BS . . . . .	18	67



V. Academic ranks of faculty	<u>1970</u>	<u>1980</u>
1. Professor . . . . .	-	7
2. Associate Professor . . . . .	-	5
3. Assistant Professor . . . . .	-	41
4. Instructor . . . . .	13	79
5. Asst. Instructor, Jr. Instructor.	6	78
VI. Physical Facilities (excluding housing)		
1. No. of classroom, lab. and shop bldgs.	8	23
2. Total number of classrooms . . . .	26	85
3. Total number of laboratories . . .	14	42
4. Total number of shops . . . . .	2	6
5. Administration building (temporary)	1	1
6. Administrative offices outside of administration building . . . . .	2	12
VII. Fiscal Support (Appropriations)	<u>1969-1970</u>	<u>1979-'80</u>
1. National Government Contributions		
a. For operation and maintenance	₱463,477	₱6,735,000
b. Capital outlay . . . . .	20,000	8,700,000
c. For equipment outlay . . . . .		378,000
2. College income (all sources) . . . .	80,000	1,249,987
3. External support for		
a. Research (all sources) . . . .	None	1,300,000
b. Extension(all sources) . . . .	None	150,000
	<u>₱563,477</u>	<u>₱16,512,987</u>

### Future Outlook:

The Faculty, employees, students and the people of Benguet province look with great anticipation to the conversion of B.C. into a university very soon.

The physical development program of the College is expected to be completed in 1985. Among the infrastructure

projects contemplated and already indicated in the development plan approved by the Ministry of the Budget and proposed for funding from 1981 to 1985 are:

1. Administration building
2. Sports complex
3. Student housing (boys and girls dormitories)
4. Staff housing (faculty and employee cottages)
5. Central Library
6. Student Services Building (Student Union)
7. Executive house
8. Waste disposal and recycling system
9. Campus roads and bridges
10. Completion of the agricultural sciences complex, training department complex, and processing plant.

The teaching, research and extension capabilities and competencies of the college have been adequately demonstrated and proved. Along these years, the College's contributions to national development and growth are now recognized nationally.

CHAPTER I  
INSTRUCTION

A. Enrolment

The total enrolment for calendar year 1979 ending December 31, 1979 was 4,305 pupils and students.

1. Enrolment by levels of Instruction. The distribution of enrolment by levels of instruction is indicated hereunder:

<u>Instructional Level</u>	<u>Enrolment</u>	<u>Percentage</u>
Elementary	789	18.32
Secondary	1007	23.39
Tertiary	2509	58.29
Total = = = =	<u>4,305</u>	<u>100.00</u>

2. Enrolment by Course and Term, Tertiary Level.

<u>Curricular Program</u>	<u>1st Sem.</u>	<u>2nd Sem.</u>
<u>Graduate</u>		
Master of Science	101	89
<u>Undergraduate</u>		
B.S. in Agriculture	1242	1111
B.S. in Ag. Education	482	430
B.S. in Home Technology	347	139
B. in Agri-Bus. Management	72	76
B.S. in Forestry	335	305
B.S. in Animal Technology	215	181
B.S. in Ag. Engineering	171	177
<u>Non-Degree Post Secondary</u>		
1-Year Agricultural Mechanics	25	1
Total = = = =	<u>2790</u>	<u>2509</u>

3. Student Origin. The demographic origin of students enrolled in the tertiary level based on their places of birth follows:

<u>Origin</u>	<u>Total</u>	<u>Percentage</u>
Within the Province of Benguet	1,263	45.27
Within Region I but outside the Province of Benguet	1,193	42.76
Within the country but outside Region I	332	11.90
All others (Foreigners)	2	.07
Total = = = =	<u>2,790</u>	<u>100.00</u>

4. College Scholarship. A total of 282 students enjoyed various types of scholarships granted by the College, the government and private agencies.

<u>Type of Scholarship</u>	<u>No. of Grantees</u>	<u>Total</u>
a. Academic (MSAC)		
(1) Resident Honor Student general weighted average of 1.0-1.45 (full); 1.46-1.75 (partial)	3	
(2) Valedictorians	3	6
b. College Extracurricular Scholarships		
(1) Glee Club	28	
(2) Dance Troupe (Glee Club)	14	
(3) CMT Corps Commander	12	
(4) Editor, THE MOUNTAIN COLLEGIAN	1	
(5) Student Assistants	32	87

c. Government	<u>No. of Graduates</u>	<u>Total</u>
(1) Non-Muslim Educational Assistance Program	15	
(2) Study-Now-Pay-Later Plan	39	
(3) National Integration Study Grant Program	85	
(4) Philippine Veterans Administration	30	
(5) Armed Forces of the Philippines	1	
(6) National Food and Agricultural Council	2	172
d. Other Agencies		
(1) Baguio-Benguet Petroleum Dealers' Association	3	
(2) United States Veterans Administration	14	17
	<u>282</u>	<u>282</u>
	====	====

5. Secondary Scholarship. High school students also enjoyed administrative scholarships during the 1979 calendar year.

<u>Type of Scholarship</u>	<u>No. of Awardees</u>
a. Secondary Agricultural Science Education Scholarship	96
b. CAT Corps Commander (Full tuition)	1
c. CAD Adjutant (Half tuition)	1
d. Editor, THE MOUNTAIN BREEZE (Full tuition)	1
e. Managing Editor, THE MOUNTAIN BREEZE (Half tuition)	1
f. Exempted from paying school organ fee of P6.00 (Associate, News, Research, Filipino, Literary, and Feature Editors)	16
	<u>118</u>
	====
Total = = = =	118

B. Graduates as of October 1979

Tabulated below are figures which show the number of graduates in the different curricular programs of the College.

<u>Curricular Programs</u>	<u>No. of Graduates</u>		<u>Total</u>
	<u>Male</u>	<u>Female</u>	
Master of Science	2	-	2
B.S. in Agriculture	26	35	61
B.S. in Home Technology		8	8
B.S. Forestry	10	5	15
B.S. in Agricultural Educ.	6	12	18
B.S. in Animal Technology	6	1	7
B. of Agri-Business Mgmt.	1	1	2
Forest Ranger Course	4	2	6
Total = = = =	55	64	119
	=====	=====	=====

C. Teaching and Support Personnel

During the period under review, the strength of the personnel was as follows:

<u>Personnel</u>	<u>Number of Personnel</u>
Teaching Personnel	
Elementary Education	31
Secondary Education	59
Tertiary Education	125
Support Personnel	
Non-Teaching Personnel	97
Casuals & Other Laborers	67
Total = = = =	379
	=====



D. Accomplishments, Problems, and Recommendations for Instruction

1. Professional Growth

The following show the members of the faculty who finished their studies and/or on study leave in the period under review:

a) Graduated:

- |                        |  |
|------------------------|--|
| 1. Ph.D./Ed.D. . . . . | U. C. Perez, Ed.D., M. B. Mercado, Ed.D., A.D. Mamaril, Ph.D., C.B. Dimas, Ed.D. |
| 2. M.A. . . . .        | J. D. Botacion<br>P.J. Fernandez   |

b) On Study Leave

- |                      |   |
|----------------------|---|
| 1. M.S./M.A. . . . . | L.M. Colting, R.D. Colting, L.G. Lirio, S.B. Maddul, Z.C. Nisperos; N.R. Palispis, C.A. Tuguinay, E.T. Valdez, F.C. Victor, L.M. Villanueva |
| 2. Ph.D. . . . .     | C.C. Consolacion; P.B. Alipit, W.D. Dar, C.J. Oliveros  |

E. Graduate Studies Program

1. Field of Instruction - The fields of instruction in the graduate program were Agronomy, Agricultural Education, Agricultural Extension, Animal Science, Horticulture, Practical Arts, and Soils (Soil Science).

2. Faculty - Thirty six teachers were identified to possess the necessary education, work experiences and other qualifications to teach in the graduate level.

<u>Field of Instruction</u>	<u>Number of Graduate Faculty</u>
Social Sciences (Ag.Ed., Ag. Ex., Ag. Eco. & Practical Arts)	17

Graduate Studies Program (Cont'd.)

<u>Field of Instruction</u>	<u>Number of Graduate Faculty</u>
Plant and Biological Sciences	11
Veterinary and Animal Sciences	4
Soil Science	3
Statistics	1
Total = = = =	<u>36</u> =====

Of this total, seven were with doctorate, three on Ph.D. scholarships, and 26 with master's degrees and with advanced units towards the doctorate program.

3. Students - Enrolled during the calendar year under review were:

<u>Term</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
1st Semester	41	23	64
2nd Semester	49	26	75
Summer 1979	27	35	62
Total = = = =	<u>117</u> =====	<u>84</u> =====	<u>201</u> =====

Most of the graduate students came from other state colleges in Regions I and II and other agricultural school and colleges in Region I. Many are from the various bureaus such as the BMDx, BPI, BAI, and BS of the Ministry of Agriculture. Some teachers of the Ministry of Education and Culture were also taking graduate studies at the Mountain State Agricultural College, especially in the field of Practical Arts.

4. Graduates - Seven (7) students graduated in 1979. Six (6) were conferred their masteral degrees on March 21, 1979 and one finished in the summer of 1979.

5. Problems and Suggestions -

- 1) There is a need to acquire more books and periodicals
- 2) The College must purchase more instructional aids (A-V materials) and laboratory equipment.
- 3) Some faculty members need to strengthen their research capabilities to be able to advise thesis students.

F. Student Services and Instructional Facilities

The following figures supplement the report covered in the NSAC Annual Report for SY 1978-1979.

1. Guidance and Counseling Services

1.1. <u>Dropouts</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
a. High School	22	6	28
b. College	32	30	62
1.2. <u>Marriage Counseless</u>			
a. High School	0	0	0
b. College	2	1	3
1.3. <u>Psychological Tests</u>			
a. High School			
(1) Otis-Lubben Mental Ability Test	127	60	187
(2) Purdue (Non- Verbal Test)	127	60	187
(3) ECII-M-F	47	52	99
b. College			
(1) Mental Ability (I.Q.)	269	355	624
(2) Personality Test (Personality Adjustment In- ventory)	17	63	80

<u>Psychological Test (Cont'd.)</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
(3) Entrance Test (SCAT)	427	427	1,001
1.4. <u>Excuse Slips Issued</u>			
a. College Students	143	194	337
b. High School Students	254	211	465
1.5. Reference Cases (Hospital)	12	10	22

Other guidance services accomplished were counseling services, orientation program to college freshmen, career guidance to senior high school students, film showing in career guidance, group dynamics, student pastorate activities, scouting activities, seminar-workshops on home-room guidance to elementary and secondary instructors and principals, seminars on peer counseling, facilitating groups during leadership seminars and seminars-workshops, conference with parents (individual), teacher conferences and follow-ups done during homeroom scheduled meetings with homeroom and subject teachers, and College faculty-retreat.

## 2. Library Services

Below are the statistical data and accomplishments of the MSAC Libraries.

### 2.1. Library Collections Acquired in January-December, 1979

#### a. Books

Tertiary . . . . .	1,128
Secondary . . . . .	598
Elementary . . . . .	790

2.1. Library Collections (Cont'd.)

b. Theses . . . . .	208
c. Pamphlets . . . . .	2,269
d. Serial Titles . . . . .	
(1) Gifts . . . . .	24
(2) Exchange . . . . .	23
(3) Subscription . . . . .	20
	<hr/>
Total = = = =	<u>5,060</u>

2.2. Library Staff Output of Work

a. Technical Services	
(1) Titles Classified . . . . .	1,516
(2) Books Accessioned . . . . .	2,516
(3) Books pasted with pockets date due . . . . .	7,819
(4) Added Entries . . . . .	878
(5) Card Typed . . . . .	8,066
(6) Number of Periodicals Indexed . . . . .	722
b. Business	
(1) Incoming Correspondence . . . . .	79
(2) Outgoing Correspondence . . . . .	114
(3) Memoranda Issued . . . . .	7
(4) Books Recommended for Purchase . . . . .	519
c. Current Awareness Services . . . . .	21

2.3. Number of Clienteles using the Libraries

<u>Library Unit</u>	<u>Summer 1979</u>	<u>1st Sem.</u>	<u>2nd Sem.</u>
a. General Circulation	4,293	30,106	38,512
b. Reserved	6,566	41,173	40,668
c. Graduate References	3,319	5,678	6,782
d. Serials	3,123	7,896	10,873
e. Secondary	2,364	18,723	16,928
f. Researchers (Other agencies and substitution)	46	285	184

2.4. Total number of books circulated . . . . . 88,332

2.5. Total number of books borrowed but always out 7,153

2.6. Other Accomplishments

- a. Solicited donations of books for the three college library units both local and foreign.
- b. Organized the centralization of technical processing of all types of library materials in all three levels.

2.7. Problems:

- a. Limited Funding - The library operates without a regular budget, thus hampering the growth of the collections and deterring services to the library clientele services.
- b. Inadequate facilities and cramped library quarters because of the increase in enrolment and insufficiency of library quarters.

2.8. Recommendations:

- a. To develop a good care of book collections, it is recommended that the College Administration earmarks a fixed percentage of the total institutional budget for the library and that all library fees be channeled to the library instead to the National Government.
- b. It is recommended that the veranda (Open space) of the second floor of the College Library be con-

MAF 025



verted into a reading room for the Serials Section until such time when a new and bigger library building will be erected.

### 3. Health Services

#### 3.1. Medical Services

a. Total number of students treated . . .	1,164
b. Total number of faculty and employees treated . . . . .	222
c. Total number of dependents treated . .	37
d. Total number of referrals to outside agencies . . . . .	83

#### 3.2. Cases Found by System

a. EWVE . . . . .	247
b. Cardiovascular . . . . .	56
c. Respiratory . . . . .	384
d. Gastrointestinal . . . . .	115
e. Genito-Urinary . . . . .	40
f. Integumentary . . . . .	88
g. Skeleto-Mascular . . . . .	10

#### 3.3. Communicable Diseases Found . . . . . 144

a. Influenza . . . . .	102
b. Measles . . . . .	2
c. Herpez Zoster . . . . .	2
d. Scabies . . . . .	36
e. Mumps . . . . .	2

#### 3.4. Accidents encountered in form of wounds, burns, hematomas, contusions, sprains, etc. . . . 239

#### 3.5. Problems Encountered

##### a. Lack of Facilities

- (1) Sterilizer for clinic instruments, especially those used for surgical purposes.

- (2) Linens to replace dirty and dusty ones presently used in the clinic.
- (3) New needles for better and safer penetration and administration of parenteral medicines.
- (4) Lack of instruments for completion and accuracy of diagnosis.

b. Lack of Personnel (No permanent physician)

### 3.6. Recommendations:

- a. Provisions for a complete clinic facilities.
- b. Purchase of sterilizers for clinic instruments.
- c. Employ a permanent physician, even only on a part-time basis.

## 4. Dental Services

### 4.1. Accomplishments from January to December 1979

a.	No. of patients inspected (first visit) . . . . .	356
b.	No. of patients inspected (follow-up visits) . . . . .	75
c.	No. of patients found with defects (first visit) . . . . .	430
d.	No. of patients treated . . . . .	3
e.	No. of patients corrected . . . . .	5
f.	Tooth extractions made	
	(1) Temporary teeth . . . . .	7
	(2) Permanent teeth . . . . .	257
g.	Fillings made	
	(1) Cement . . . . .	4
	(2) Silicate . . . . .	2
	(3) Zinc Oxide eugenol paste . . . . .	180
h.	DMF Survey	
	(1) Temporary teeth	
	(a) No. of teeth found with decays . . . . .	26

## (2) Permanent teeth

(a) No. of teeth found with decay (D) . . . . .	1,917
(b) No. of teeth found missing (M) . . . . .	758
(c) No. of teeth found with fillings (F) . . . . .	128

4.2. Major activities or occasions during the year where practically no treatments were made:

- a. January-Provincial Meet held at Bus, Itogon, Benguet . . . . . 3 days
- b. April -15 days Rural Services
- c. May -One week for Philippine Dental Association Convention CPDA
- d. June -Enrolment period
- e. July -Three weeks on sick leave-vehicular accident
- f. August -Two weeks on sick leave-vehicular accident
- g. December-Provincial Meet at MMAC, La Trinidad, Benguet followed by Christmas vacation.

4.3. During the first semester of 1979, a Rural Health Program participation (RHPP) physician was assigned at MMAC for a total of three months service. Some office supplies were delivered.

5. Student Housing (Ladies Dormitory)

5.1. Activities and accomplishments:

a. No. of occupants. . . . .	96
b. Rate per occupant . . . P21.00/month which include lodging at P20.00/month and water bill at P1.00/month	
c. Total collections deposited with the Cashier's office . . . . .	P2,520.00

- d. Secured regular daily subscription of reading materials.
  - (1) Newspapers . . . Bulletin Today and Daily Express
  - (2) Magazines . . . Woman's and Mod
- e. Started issuance of Official Receipts to students and use of Cash Bank Book.
- f. Installed flourescent lights for study halls, sala, and rooms whose lights were not favorable for studying.
- g. Installed faucets outside because the bathrooms available were insufficient.
- h. General clean-up and beautification activities.
- i. "Cockroach Eradication" through Gabay Napocon Services.
- j. Cemented frontage of entrance door.

#### 5.2. Problems Encountered

- a. Inadequate housing facilities like toilets, bathrooms, study tables, study halls, etc.
- b. Lack of recreational facilities
- c. No dormitory office.
- d. No systematic record files.
- e. No safety closets for collections, records, etc.

### 6. Co-Curricular Programs and Activities

#### 6.1. Supreme Student Council

- a. Election of Officers of the Supreme Student Council.
- b. Election of Class Officers
- c. Mass Induction of Class Officers and Officers of the Supreme Student Council.

- d. Inter-department athletic competition
- e. Literary and Musical presentation
- f. Glee Clubs
- g. Kontad Dance Troupe
- h. Youth Community Service Club (YCSC) (service oriented)
- i. Programs for special occasions
- j. Socials or dances on special occasions

#### 6.2. Problems and Recommendations

- a. The need to construct an office for the Students' Supreme Council, as the SSC office is squatting along the corridor of the Testing Center, second floor of the library building.
- b. The need to purchase a microphone for use of the studentry during co-curricular activities.
- c. The need to construct a gymnasium for indoor games and for other activities that may be held indoors if weather conditions do not warrant.
- d. The need to offer athletic scholarships to deserving athletes.

#### 6.3. College and Secondary YCAP, FFP-FAHP, CNT-CLVAC, CAT-YDT and Homeroom Organizations

- a. Maintained cleanliness of the campus and national highway fronting the College.
- b. Participated in college and community socio-cultural programs and activities during the Christmas season, local, District, provincial, and regional meets; town fiestas, and Benquet Day Anniversary celebrations and commencement exercises.
- c. Participated in intramural physical fitness and sports activities, provincial and regional meets

and other college community athletic games held from time to time at the MSAC playground.

- 6.4. Other Co-Curricular Service Clubs-Socio-cultural activities in the community and also out of town in other provinces of the region were extended by the MSAC Kontad, MSAC Glee Club, MSAC Judo Club, MSAC Boy and Girl Scouts, and MSAC 4-H Club.

7. Alumni Affairs

7.1. On-Going Activities

- a. Updating the master list of the Mountain State Agricultural College Alumni Association, Inc. (MSACAA, Inc.) members to:
  - (1) de-list deceased members
  - (2) update addresses and whereabouts of members
  - (3) include the graduates of the former Benguet Provincial High School as members
  - (4) include the elementary school graduates of the former Ilang Elementary School as members.
- b. Coordinate the planning of MSACAA, Inc. members homecoming and the printing of a souvenir program.
- c. Coordinate the formulation of a guideline for an MSACAA, Inc. scholarship grant to poor but deserving students at the Mountain State Agricultural College.
- d. Coordinate with the MSACAA, Inc. Board of Directors for the association's support for the conversion of the Mountain State Agricultural College into a university,



## 7.2. To Be Accomplished

- a. Establish contacts with alumni members who are already in the field to collect and send feedbacks on the following:
  - (1) Their successes as MSAC graduates
  - (2) Their training if adequate in the performance of their jobs.
  - (3) Their problems if the training they received at the MSAC is adequate or not
- b. Establish the Office of the Alumni Relations Officer
- c. Employ, if possible, a clerk to assist the Office of Alumni Relations Officer collect, gather and establish records of matters pertinent to alumni affairs and services.

## 7.3. Recommendations

1. Establish an Alumni Relations Officer fully manned and equipped where records pertinent to alumni matters are properly filed and kept.

CHAPTER II  
RESEARCH AND EXPERIMENT STATION

A. Design and Analysis of Experiments and Surveys

A substantial coverage on the report for this chapter was described with statistical data in the MSAC Annual Report for SY 1978-1979 on such topics as capability of college researchers, administrative researches completed, on-going funded researches, summary of research funds, and research publications.

B. On-Going Research Projects

<u>Project Title</u>	<u>Researchers</u>
1. Soil Conservation and Fertility	C.J. Oliveros
Studies of Highland Vegetable Areas	E.K. Mamaril
1.1. Control and Determination of the rate of soil erosion on highly vegetable areas	
1.2. Residual effects of fertilizer and liming of highland vegetable areas	
1.3. Effects of organic fertilizer and crop rotation on some physical and chemical properties of the soil	

On-Going Research Projects (Cont'd.)

- |      |   |                               |
|------|---|-------------------------------|
| 1.4. | Rate of depletion, mode of replenishment and maintaining nutrient level in intensively cultivated areas           |                               |
| 1.5. | Correlation of soil test and crop response to different rates, time and method of applying fertilizers            |                               |
| 2.   | Quickway of Identifying Nutrient Deficiencies in Vegetables and other crops                                       | C.J. Oliveros<br>E.K. Mamaril |
| 2.1. | Identifying Nutrient deficiencies in Irish Potato   |                               |
| 2.2. | Identifying Nutrient deficiencies in sweet peas   |                               |
| 2.3. | Identifying Nutrient deficiencies in cabbage  |                               |
| 2.4. | Identifying Nutrient deficiencies in cauliflower  |                               |
| 2.5. | Identifying Nutrient deficiencies in strawberry   |                               |
| 3.   | Trace Element Status of Vegetable in Benruct  | C.J. Oliveros<br>R. Colting   |
| 4.   | Studies on the Effects of the Different Factors on the Behavior of Micro-Elements in Intensively Cultivated Soils | C.J. Oliveros<br>R. Colting   |

- |    |   |                               |
|----|---|-------------------------------|
| 5. | Study on the Best Rate and Time of Application of NPK Fertilizer on Sweet Potato under Highland Condition                     | C.J. Oliveros                 |
| 6. | Effects of the Different Rates of Organic Fertilizers on the Yield and Quality of Seeds of Radish, Pechay and Chinese Cabbage | C.J. Oliveros                 |
| 7. | Asparagus Research and Production Program   | C.J. Oliveros<br>E.K. Mamaril |

C. Research and Publications Office

1. Personnel - The personnel of the Office is composed of the office chief, the information editor, and a regular clerk, who was at times assisted by a casual clerk. The college photographer is still attached to the Office. During the last month of the year, a duplicating operator was hired to handle the mimeographing and electronic stenciling machines.
2. Accomplishments
  - a. Helped the Department of Languages and Social Sciences in the teaching of Spanish and Political Sciences. The chief and the information editor handled 12 units each.
  - b. Printed the 1979-1980 Student Handbook.
  - c. Helped the students and faculty in the publication of the NSAC Research Journals 4 and 5.

- d. Prepared articles for the MSAC Farm News Bulletin.
- e. Took care of correspondence with local and foreign institutions or individuals regarding published researches and journal exchanges.
- f. Distributed free copies of published researches to local and foreign visitors and to the town and provincial government officials.
- g. Prepared, published and bookbound the report on the 1979 FFP-FARP-FVLP Conference-Workshop which was distributed to the member schools and officials.
- h. Served as information office for callers at the Agricultural Engineering Complex Building.
- i. Took pictures of experiments, research and physical facility projects, on important occasions and activities .
- j. Helped prepare and publish the MSAC Institutional Profile for 1979 and the MSAC Innovate Education Projects and Projects
- k. Helped edit and/or type student manuscripts.
- l. Did typing, xero-graphing, and binding jobs requested by the Administration and other offices of the College especially the Rural Training Center for Rural Development.
- m. Coordinated the student publications, The Mountain

Collegian and The Mountain Breeze, geared towards the development goals of the country.

The Mountain Collegian was adjudged the "Most Outstanding College Newspaper" during the School Year 1978-1979.

- n. Rendered guidance help to students especially those involved in tribal conflicts.
- o. Served in the Secretariat Committee of the PASUC Conference held in NSC on April 18-21, 1979.
- p. Helped in the activities during the Commencement Exercises, particularly in the preparation and printing of the souvenir program.

### 3. Financial Report

After settling for its own needs and other obligations, the Office made a net gain of ₱816.35 for the period under review.

Gross Income . . . . .	₱ 7,245.65
Expenses . . . . .	6,429.30
Net Income = = = =	<u>₱ 816.35</u>

### 4. Problems and Needs

The Publications Office is in need of three (3) good mica typewriters and a binding machine. At present, the lone mica typewriter of the Office is still with the Supply Office for repair.

Secondly, a binding machine and its accessories should be purchased for the Office. The newly hired duplicating machine operator can also do bookbinding jobs. The Publications Office then can help better the Library and the Administration Office.

D. Highland Agricultural Research Center (HARC)

The purpose of the HARC is to set up a mechanism for planning, coordinating, monitoring and implementing agricultural research in the Mountain Provinces. The policy-making body is vested in the Research Coordinating Committee (RCC) with the following members:

College President	- - - -	Chairman
Deputy Director		
General for		
Research, PCARR	- - - -	Member
Executive Regional		
Director, NEDA	- - - -	Member

Researches funded by government and private agencies are outlined below:

A. PCARR Funded Researches:

1. Project Title: Strawberry Improvement II. Clean and Healthy Runner Production in the Philippines.

Researchers : Prof. F. Hermano

Amount : P157,316.00
2. Project Title: Rapid Multiplication of Chrysanthemum through Tissue Culture: Stemtip Proliferation

Researcher : Miss V. D. Alejandro

Amount : P54,621.80



PCARR Funded Researches (Cont'd.)

3. Project Title : Collection, Varietal Evaluation, Cultural Management and Post-Harvest Studies of Gladiolus Sp.
- Researcher : Mr. B. Ladilad
- Amount : ₱54,621.80
4. Project Title : Collection, Introduction and Evaluation of Major Highland Vegetables
- Researcher : Prof. W. D. Dar
- Amount : ₱64,876.00
5. Project Title : Production Cost and Returns of Market-Oriented Vegetables in the Highlands
- Researcher : Prof. W. D. Dar
- Amount : ₱91,232.00
6. Project Title : Utilization of Carrots in Processed Products
- Researcher : Mrs. E. Mangicet
- Amount : ₱48,081.05
7. Project Title : Processing of Mushroom and Asparagus for Local Market
- Researcher : Prof. R. C. Abastilla
- Amount : ₱81,100.00
8. Project Title : Coordinated Research on Cultural Management of Selected Highland Leguminous Vegetables
- Researcher : Prof. W. D. Dar
- Amount : ₱87,928.00

9. Project Title : The Effect of  $GA_3$  on Vegetables Fruit Ripening  
 Researcher : Prof. E. Gacalo  
 Amount : ₱46,060.00
10. Project Title : Carry-over Effects of  $GA_3$  in the Seed Development and Viability of some major Highland Vegetable Crops  
 Researcher : Prof. E. Gacalo  
 Amount : ₱55,560.00
11. Project Title : Development of Training Kits for Technology Transfer of Major Highland Vegetables  
 Researcher : Dr. B. Alonzo  
 Amount : ₱48,000.00
12. Project Title : Optimum Plot Size Field Experiment on Sub-Temperate Crops  
 Researcher : Mrs. S. Beligan  
 Amount : ₱95,048.00
13. Project Title : Collection, Introduction and Evaluation of Selected Root Crops in Highland Environment  
 Researcher : Prof. W. D. Dar  
 Amount : ₱14,132.00
14. Project Title : Cropping Schemes of White Potato and Gabi in Highland Environment  
 Researcher : Prof. W. D. Dar  
 Amount : ₱64,176.00

15. Project Title : Evaluation of Non-Formal Education Programs in Agriculture and Natural Resources in Benguet and Mountain Provinces
- Researcher : Mrs. E. Mangioet
- Amount : 243,428.65
16. Project Title : Socio-Cultural Constraints to Agricultural Production in the Highland
- Researcher : Prof. L. Villamater
- Amount : 180,220.00
17. Project Title : Traditional and Innovative Agricultural Management Practices: The Implication to Agricultural Development
- Researcher : Dr. E. Alonzo
- Amount : 150,000.00
18. Project Title : Ethno-Agricultural Communities in the Highlands
- Researcher : Prof. S. Serrano
- Amount : 196,700.00

B. MS.C Funded Researches

1. Project Title : Response of Strawberry to Different Concentrations and Time of Application of Gibberellic Acid
- Researcher : Prof. E. Gacelo
- Amount : 18,601.00

2. Project Title : Effect of Different Citrus Root Stock Cultivars on Growth and Yield of Satsuma Oranges under La Trinidad Conditions
- Researcher : Prof. B. Dimas
- Amount : P52,387.00
3. Project Title : Effect of Cropping Practices on Growth and Yield of Strawberry under La Trinidad Conditions
- Researcher : Mr. ... Tipayno
- Amount : P27,235.00
4. Project Title : Marketing of Selected Cut Flowers in Baguio and Benguet
- Researcher : Mrs. J. Solimen
- Amount : P11,496.48
5. Project Title : Growth and Yield of Potted Chrysanthemum as affected by Growth Retardants
- Researcher : Mr. B. Ladilad
- Amount : P38,312.00
6. Project Title : Growth and Flower Improvement of Chrysanthemum Through Supplementary Lighting
- Researcher : Mr. B. Ladilad
- Amount : P25,115.40
7. Project Title : Production Economics of Sweet Pea
- Researcher : Mrs. J. Solimen
- Amount : P34,956.24

8. Project Title : Some Physiological Studies on Sweet Peas in Relation to Seed Formation
- Researcher : Prof. E. Gacelo
- Amount : P79,220.00
9. Project Title : Crop Protection Studies on Pests and Diseases of Sweet Pea
- Researcher : Mr. E. Akiew
- Amount : P73,000.00
10. Project Title : Off-Season Culture of Selected Vegetables
- Researcher : Prof. W. D. Dar
- Amount : P61,648.00
11. Project Title : Coordinated Research on Cultural Management of Sweet Pea
- Researcher : Prof. W. D. Dar
- Amount : P93,432.00
12. Project Title : Maximizing Productivity of Selected Vegetable Crops with Minimum Usage of Commercial Fertilizers
- Researcher : Dr. C. J. Oliveros
- Amount : P25,246.00
13. Project Title : Studies on the Rhizobium-Pisum Sativum Symbiosis
- Researcher : Prof. T. Merastela
- Amount : P141,088.00

14. Project Title : Integrated Research on Storage Technology for Seed and Table Potatoes  
Researcher : Prof. E. Sano  
Amount : P106,858.00
15. Project Title : Product Development and Processing of Potatoes  
Researcher : Mrs. L. Balaoing  
Amount : P96,858.00
16. Project Title : Collection, Identification, Maintenance and Evaluation of Ubi  
Researcher : Mrs. L. Cadatal  
Amount : P10,030.00
17. Project Title : Integrated Research on Cultural Production of Potato for Table Use  
Researcher : Dr. L. Victor  
Amount : P106,858.00
18. Project Title : Nutritional Requirements of White Potato  
Researcher : Mr. J. Balaoing  
Amount : P99,858.00
19. Project Title : Control of Pests and Diseases  
Researcher : Mr. E. B. Akiew  
Amount : P96,848.00
20. Project Title : Crop Protection Studies on Pests and Diseases of Potato  
Researcher : Mr. E. B. Akiew  
Amount : P96,858.00

21. Project Title : Verification of Updated Technology  
in the Farmers Field to Maximize  
Productivity
- Researcher : Prof. E. O. Soro
- Amount : 196,858.00

E. NPRCRTC & CIP-MS.C-PCARR White Potato Project

1. In collaboration with International Potato Center and  
PCARR, the following root crop project were accom-  
plished:

1.1. Building Erected

- a. Two Potato Storage Buildings  
b. One Screenhouse

1.2. Potato Researches

- a. Fifteen studies were completed  
b. Sixteen on-going studies to be completed  
in 1980

2. Production projects are in full operation.

F. MS.C-IPB Project

The MS.C-IPB substitution project is under the super-  
vision of Prof. Faustino G. Hermoso with six personnel.

Some notable activities are the following:

1. Potato Regional Trial -

Rainy season Potato Regional Trial was carried  
out successfully.

The dry season potato regional trial has just  
been planted last December 1, 1979. The plants  
are growing well except those virus infected plants.



## 2. First 4's, First 10's and Observational Trials on Potato

These trials were planted last December 1, 1979.

Again, the plants are growing well. They are already at the peak of growing and perhaps at tuberization stage.

## 3. Potato Breeding

The parent stocks for pollination work planted last December 12, 1979 were planted in one of the existing plastic houses of the College rather than in the glass-house of the substation. They have emerged and are growing vigorously despite relatively low light intensity penetration.

## 4. Flower Induction Study on Cabbage

The first flower induction study was done early in 1979. The cabbage grew vigorously which perhaps prevented the effect of the  $GA_3$  applied. The height of the  $GA_3$  treated plants was considerably higher than those with  $GA_3$ . Through observations and experiences on this aspect, the plants (cabbage) need more frequent  $GA_3$  application to overcome the effect of relatively low temperature for growth and head formation.

Edible seeds of L. and Leo seeds were sown last November 1979. The seedlings were adversely infested with downy mildew and damping-off. Cabbage seeds (P1, M and Leo) were planted by Maria de Guzman to replace the seedlings

attacked by the diseases. Unluckily, Fl Leo seeds have only about 10% germination. KK seeds though have almost 100% germination.

5. Screening for Cold Tolerance on Ipil-Inil

Last May, 1979, another ipil-ipil planting was done. The same site or area was used. The result was entirely similar with that of 1978 trial. The type of soil and the cold temperature were suspected to be the main cause of the very poor stand of the plants. The seeds emerged but failed to continue growing. As of the end of 1979, there were very few ipil-ipil standing.

6. Field Bean Yield Trial and Germplasm Collection and Evaluation

Germplasm collection and evaluation was done this year. It was observed that some of the accessions show moderate resistance to bean rust, they very important disease of beans in La Trinidad, Benguet. There were no accessions though which showed resistance to thrips.

7. Cooperative Wheat Performance Test

This cooperative wheat performance test was again done last year. It is again being repeated this year/season.

The wheat performance test last December 1978

and harvested April 1979 was fairly successful. The plants were not as good as the previous years. The causes of fair growth of the plants compared with the previous was suspected to be due to poorer soil used.

The same fair performance of wheat was planted November 24, 1979. The type of soil used this year (another are used) is again suspected to be the cause of unequal growth of the plants. The unequal growth of the plants is being corrected.

8. Pechay, Mustard and Radish Seed Production

These crops were sown last December 3 to 5, 1979.

9. Pili Nut Trial in the Highland

Some plants survived. Those survived plants are almost a foot tall. Those plants are already about two and a half years old.

10. Germplasm Collection and Evaluation of Chick Pea

Chick pea was planted last December 1978 to April 1979. Because of too much vegetation, plenty of pods produced were seedless.

Problems

1. Lack of greenhouse and storage room. Construction of a house and storage room.
2. Lack of equipment. Purchase of one unit hand tractor.

## CHAPTER III

## EXTENSION

A. Extension Program

The extension program of the College in 1979 was spearheaded by the Department of Agribusiness and Economics Management. All the important details about the community services of the College were reported in the MSAC Annual Report for SY 1978-1979. Described were the MSAC-PBS-OXFAM extension project, MSAC-NMYC National Agricultural Skills Training Program, and extension services by departments, and MSAC-SM, RCA Social Laboratory.

B. Accomplishments of MSAC Non-Formal Education Program1. Non-Formal Education Classes

<u>MFE Classes Organized</u>	<u>Enrollees</u>	<u>Graduates</u>
1.1. Adayunan Farmers' Training Class, Atok, Benguet	126	95
1.2. Pordac Farmers' Training Class, Atok, Benguet	118	97
1.3. Ambonglulan Farmers' Training Class, Tublay, Benguet	210	112
1.4. Longlong Farm Skills Training Class, La Trinidad, Benguet	65	60
Total = = = =	<u>519</u>	<u>364</u>

1.5.	Adoyunan Community Or- ganization Education Training	63	On-going
1.6.	Topdac Community Or- ganization Education Training	43	On-going
1.7.	Datakan Cooperative Education Training	55	On-going
1.8.	Basil Agriskills Training	93	On-going
1.9.	Paykek-Labueg Agri- skills Training	89	On-going
Total = = = =		860	

## 2. Activities Conducted

- 2.1. Classroom instruction - lectures, demonstrations,  
and open forums
- 2.2. Demonstration projects - instructor-trainees'  
participation
- 2.3. Field trips to successful agribusiness projects
- 2.4. Training on cooperative principles and practices

## 3. Non-Formal Education Seminar-Workshops Conducted

- 3.1. Community Organization
- 3.2. Cooperative Education
- 3.3. Family Planning
- 3.4. Farm Credits

#### 4. Funding Agencies

The year's extension projects were funded by two agencies:

- 4.1. OXFAM, Oxford, London  
(Foreign Foundation) . . . . . 195,000/yr.
- 4.2. NMVC, Philippines . . . . . 110,000/half yr.

#### 5. Personnel

In the extension program funded by OXFAM, six (6) full-time technicians are employed and paid out of the grant. These technicians are stationed in the barrios where the farmer-clienteles live. Some of the college instructors and professors are also invited as resources persons.

For the NMVC funded project, two college professors are employed as part-time instructors.

#### 6. Problems

- 6.1. Delay at times in the release of grants
- 6.2. Lack of facilities for a real extension division office
- 6.3. Lack of specifically appointed personnel to handle extension services of the college.

#### 7. Recommendations

- 7.1. Establish an Office for the Extension and Continuing Education Division where programs and project plans could be worked out.
- 7.2. Staff the division with appointed personnel.

7.3. More funds for Extension Services to improve the Extension Program of the College.

C. Production Projects and Incomes

The total income from the various production projects of the College for calendar year 1979 amounted to ₱194,578.16.

<u>Production Project</u>	<u>Personnel In-Charge</u>	<u>Net Income</u>
1. Publications	Mr. B. M. Balweg	142,650.00
2. Balili Farm Project	Mr. S. O. Sano	29,100.00
3. RSDC Guestel	Mr. I. B. Viado	20,428.17
4. College Canteen	Mrs. O. Estera	16,653.00
5. Swamp Vegetable Project	Mr. J.P. Martes	16,014.38
6. Swamp Vegetable Project	Mr. R. M. Bocalan	6,005.55
7. Swamp Vegetable Project	Prof. D. Dampilag	8,884.17
8. Floriculture Project	Mrs. A. Ladilad	6,702.40
9. Swamp Vegetable Project	Mr. G. Bilango	8,609.00
10. Pomology & Swamp Vegetable	Prof. A. Tipayno	10,126.65
11. F.M.P Canteen	Ms. M. Chanfing	13,321.35
12. Ladies' Dormitory	Prof. E. Hufana	11,818.75
13. Poultry Project	Mr. S. Arcellana	2,293.74
14. Piggery & Rabbitry Project	Dr. A. D. Magtoto	1,970.35
Total = = = =		<u>₱194,578.16</u>

D. Community Environmental Development Activities

As of the end of the 1979 calendar year on the second year implementation of the five-year M.S.C Development YCAP Plan approved by the Director of National YCAP Coordinating Center of the Ministry of Education and Culture, the following are the YCAP accomplishments:



YCAP Activities &  
Sectoral Areas

	<u>Extent of Completion</u>	<u>Remarks</u>
1. Concreting of two lane campus road from Gate 4 to Sec. Vo-Ag Building - 1 Km. long.	About .70 of one lane was completed with the help of YCAP students during off-school hours in 1979.	Release of funds for the project slowed down the completion of the project.
2. Graveling of Balili Farm Road (Animal Projects) to Hanging Bridge near the Mushroom Project 1.5 Km.	Road graveling was not yet started. However, YCAP students maintained the cleanliness of the farm road.	Gravel and sand materials were not available for the farm road.
3. Laying out subdivision roads in Housing Area.	Not yet started but plans for implementation were made.	The work on the project depends on funds available.
4. Cleaning of National Highway (1.5 Km.) and white-washing of College concrete fence (1.5 Km.)	Landscaped and whitewashed by YCAP students in 1979.	Beautification and cleanliness of the road maintained by YCAP students.
5. Construction of main gate.	Not yet started	The project will be started as soon as funds are available.
6. Construction & maintenance of irrigation canals in Balili.	YCAP students maintained cleanliness of irrigation canals.	Periodically maintained by YCAP students.
7. Graveling of Swamp Vegetable Project Farm Roads - 2 Km.	No graveling but cleanliness of the farm-to-market roads (2 Km.) was maintained.	Graveling of road will be done before 1982.
8. Fencing of main campus, 5 Km.	Concrete fencing along National Highway (2 Km.) was completed.	About 3 Km. of main campus concrete fencing not yet started.

YCAP Activities . . . (Cont'd.)

9. Construction of road behind Ag. Eng'g. Complex (.50 Km.)	Not yet started.	Project will be started before 1982.
10. Construction of road from National Highway to Balili Barangay (.05 Km.)	Laid out and gravelled with sand.	Maintained by YCAP students.
11. Landscaping and improving Floriculture Project Road dead-end (including drainage system) to Lab. Schools and Balili from National Highway to Balili Suspension Footbridge.	Cleanliness and landscaping of the area was maintained.	Periodically maintained by YCAP students.

Aside from the foregoing YCAP accomplishments in 1979, the following were also done:

1. Cleaned roadsides of College Street No. 1 to deadend . . . . . 500 m.
2. Planted 200 alnus trees on both sides of the extension of College Street No. 1 toward the west . . . . . 500 m.
3. Planted 250 agocho trees with guards on both sides of campus concrete road from Ag. Engineering Complex to M.C.C Clinic. . . . . 1,500m.
4. Planted 100 agocho trees and 50 pilinut trees with tree guards in front of Ag-Engineering Complex . . . . . 200 m.
5. Planted 200 African tulips and 500 bottlebrush with tree guards three meters away from College concrete fence (Vo-Ag. Building frontage to Banguet Division Office) . . . . . 5,000m.

6. Planted 800 agoho trees with tree guards 12 meters away from College concrete fence along the National Highway (Vo-ag. Building frontage to Benguet Division Office) . . . . . 5,000m.
7. Interplanted 500 bottlebrush tree with tree guards five meters away from the main campus road (Vo-ag. Building to Benguet Division Office) . . . . . 4,000m.
8. Maintained cleanliness of campus lawns and surroundings of building premises and all the YCAP sectoral areas . . . . . 10 has.
9. Planted 100 alnus and bottlebrush trees with tree guards behind the Soils-Chem, and Agribusiness Bldgs. branches . . . . . 200 m.
10. Pruned branches of 105 old alnus and African tulips interfering with electric and telephone wires along the National Highway . . . . . 8,000m.
11. Planted 60 alnus trees on both sides of canals along Betag Barangay road . . . . . 60m.

Trees planted inside the campus have a 95 percentage survival. Dead trees were replaced.

#### E. Participation in the National Tree-Planting Programs

The College secured 55,440 assorted tree seedlings mostly pine and alnus from the Bureau of Forest Development, Paadal, Baguio City and other district nurseries of the BFD in Region I and 1,600 ipil-ipil and pine trees from the NSC Forest Nursery.

The college population planted the trees in

August and September 1979 at the Collage Forest Reservation.

Actual inspection of the trees planted of survival performance.

<u>Departments</u>	<u>No. of Planters Registered</u>	<u>No. of Trees Planted</u>	<u>Place &amp; No. of H. Pltd.</u>	<u>Survival % as of 12/31/79</u>
Elementary Education	724	8,688	S. Balili Watershed 15 has.	46
Secondary Education (Gen. Sec. & Vo-Ag. Science Education)	1,000	12,000	N. Balili Watershed 25 Has.	54
Tertiary Education	2,671	32,052	Appasit Watershed Stock Farm & Agro-Forest Project 155 has.	95
Personnel	350	4,200	- ditto -	95
Total = = =	<u>4,745</u>	<u>56,950</u>	<u>195 Has.</u>	<u>72.5</u>

Each M&C planter planted 12 or more tree seedlings. The low percentage of survival of the trees planted at the South and North Balili Watershed was due to squatters and their animals pastured at the watershed.

F. Agro-Forestation Special Project (June-December 1979)

1. Accomplishments

- a. Maintenance Work-waded 8 has. of coffee areas; waded 1.8 has. of citrus areas;

and sprayed coffee trees with insect-fungicidal spray; fertilized coffee with triple 14 and Sagana 100; applied Diagrán to citrus rootstocks; hilled-up coffee and citrus trees; repaired and maintained the canals, roads, trails, drainage pipes, and outlets; and irrigated citrus trees, rootstocks and coffee in the experimental area.

- b. Constructed 2m x 500m tractor roads;
- c. Cleared 2 has. of expansion area;
- d. Constructed a filter-storage tank for the buildings (1m x 1m x 4m);
- e. Fenced the reclaimed area with barbed wire (3 strands approximately 110 meters distance);
- f. Continued concreting the surface of the storage pond (20 cm x 1m x 22m);
- g. Serviced and repaired the superhydro pump.
- h. Planted 2,000 alnus seedlings along the tractor roads and college reservation boundaries from Monument No. 17 to No. 18, Lot 1 (3-rows; alternate planting at 2 meters distance each way);
- i. Transferred 27 citrus from site of Agro-Building Phase I to an emergency site;
- j. Transferred 459 rootstocks of citrus from site of Agro-Building II to area planted with Washington Navel Oranges;

- k. Realigned the irrigation pipes;
- l. Planted sweet potato in-between coffee trees (about a hectare now ready for harvest);
- m. Planted 61 grafted apples in reclaimed area;
- n. Cleared, spot-terraced, fertilized and planted 600 coffee seedlings in the expansion area and experimental area;
- o. Apprehended kaingineros and turned them over to the local police for proper disposition of their cases.

## 2. On-Going Activities

- a. Maintenance work-weeding, spraying, fertilizing, cultivating, irrigating, liming, etc.;
- b. Expanding the area planted to coffee and preparing the area for citrus;
- c. Harvesting coffee beans since December, 1979;
- d. Conducting a research on the Effect of Shade Trees in Coffee Trees using cassava, a fast growing crop as shade trees since August, 1979.

## 3. Other Developments

- a. Construction of the Agro-Forestation Building, Phase II since November, 1979.
- b. Phase I Building not yet finished for the turnover to the Mountain State Agricultural College.

4. Plans for 1980

- a. Harvest all coffee beans, pulp and dry for market;
- b. Apply chicken dung to all coffee and citrus trees;
- c. Do maintenance jobs;
- d. Plant 4,000 coffee seedlings in expansion area;
- e. Graft 4,000 citrus scions to rootstocks;
- f. Prepare spot terraces for the fruit trees;
- g. Widen the road in the expansion area;
- h. Plant ginger in-between the coffee and citrus trees;
- i. Construct a concrete mixing tank for insect-fungicides spray;
- j. Reforest the watershed with alnus and plant some more along the roads, trails, and bench terraces;
- k. Construct more trails, roads and storage ponds in the expansion area;
- l. Plant more sweet potato in areas good for the crop;
- m. Patrol the College Forest Reservation intensively;
- n. Plant other fruit trees in the project like loquat, persimmon, passion fruits, tea, etc.
- o. Raise coffee seedlings for sale to the public to generate funds.



5. Problems and Recommendations

- a. Squatters and claimants trespass the school reservation;
- b. Rampant felling of trees by woodcutters and gatherers either for sale or home use;
- c. Lack of manpower to do maintenance work, expansion work, patrol work. Hire more personnel. All the 18 casual laborers who are on the rotation basis should be recalled immediately if only to accomplish more. If possible, 5-7 more laborers should be recruited to augment the full force of 18 laborers being rotated every 15 days.

G. Rural Services of NSIC Personnel1. Number of Employees deployed (February-July, 1979)

1.1. Non-Teaching Personnel . . . . .	74
1.2. Supportive Staff . . . . .	78
	152
Total = = = =	152

2. NSIC-Non-Formal Education Program

The report on the expanded Non-Formal Education Program launched on September 2, 1978 was accounted for in the NSIC Annual Report for SY 1978-1979. It is in this program that the members of the academic staff of the College have been engaged in extension work which serves as the rural services of the teaching personnel.

5. Problems and Recommendations

- a. Squatters and claimants trespass the school reservation;
  - b. Rampant felling of trees by woodcutters and gatherers either for sale or home use;
  - c. Lack of manpower to do maintenance work, expansion work, patrol work. Hire more personnel.
- All the 18 casual laborers who are on the rotation basis should be recalled immediately if only to accomplish more. If possible, 5-7 more laborers should be recruited to augment the full force of 18 laborers being rotated every 15 days.

G. Rural Services of MSAC Personnel

1. Number of Employees deployed (February-July, 1979)

1.1. Non-Teaching Personnel . . . . .	74
1.2. Supportive Staff . . . . .	78
	152
Total = = = =	152

2. MSAC-Non-Formal Education Program

The report on the expanded Non-Formal Education Program launched on September 2, 1978 was accounted for in the MSAC annual Report for SY 1978-1979. It is in this program that the members of the academic staff of the College have been engaged in extension work which serves as the rural services of the teaching personnel.

### E. MSAC-RSDC Services

The Regional Staff Development Center of the College was as usual open for the training and re-training of professional, technical, and socio-cultural development of staff and rural farmers by way of conferences, seminar-workshops, and symposia on the local, regional, and national level. The RSDC served as the venue of participative open discussion on all aspects of development of administrative and managers of government and private schools and non-school establishments.

<u>Theme of Confer- ence and/or Semi- nar-Workshop</u>	<u>No. of Partici- pants</u>	<u>Local/ Regional or National</u>	<u>Inclusive Dates</u>
Herdis, Incompany	14	Local	2/4/79
COA Conference	82	Regional	2/15-16/79
MAR Seminar	47	Regional	2/17-24/79
RTC-RD Resource Conference Workshop	19	Regional	2/25-3/2/79
RTC-RD Seminar	56	Regional	3/26-4/3/79
2nd Practical Arts Seminar	42	Regional	4/23-5/12/79
Ministry of Educa- tion & Culture Seminar	69	Regional	8/31/79
Philippine Cotton Seminar	50	Regional	10/3-6/79
Population Commis- sion Seminar	18	Local	10/14-16/79

<u>Theme of Conference and/or Seminar-Workshop</u>	<u>No. of Participants</u>	<u>Local/Regional or National</u>	<u>Inclusive Dates</u>
Regional Consultants Convention	47	Regional	10/18-20/79
Kabataang Barangay Leadership Training	110	Regional	10/26-31/79
Potato Post Harvest Seminar	16	National	11/7-14/79
RTC-RD Seminar	54	Regional	12/3-11/79
Bureau of Soils Conference	56	Regional	12/27-31/79

#### I. RTC-RD Complex

The construction of the Rural Training Center for Rural Development Complex was completed at the end of calendar year 1979. The RTC-RD Complex turnover-inauguration ceremonies were done on February 2, 1980. Mr. Joaquin Go, contractor, turned over the complex to EDSTAT Executive Director, August Tormatay who turned over the complex to MSAC President, Bruno M. Santos, through Dr. Aida Librero. Remarks were delivered by Region I assemblyman Andres A. Cosulan and Metro Manila Assemblyman Waldo S. Perfecto.

At the time of writing the MSAC-RTC-RD conducted the Sixth Training Course on Rural Development (March 9-20, 1980) sponsored by MA, NAB, MNR, and NLGCD.

For the first and second quarters, the RTC-RD conducted two extensionists Training Program and one Resource Person Development Program. One hundred

twenty-three (23) extension workers participated in the training program from four client agencies, MA, MAR, MNR, and NLGCD, and 17 faculty on-call of Region I and III, respectively.

Starting the third quarter, trainings widening multi-center management, multi-level and multi-agency in composition were started in Pangasinan. Four area isolates covered were: A14, A16, and A17.

Participants were distributed as follows:

1. Development Program Manager (DPMs) - -	52
2. Development Program Extensionists (DPEs) . . . . .	152
3. Development Program Operator (DPOs).	<u>151</u>
Total = = = = =	<u>355</u>

Aside from the client agencies, other rural development agencies such as the NJA and FSDC also participated in the aforesaid trainings.

These integrated training programs were jointly conducted with FEC-RD, Sta. Barbara with the involvement of NTC-RD during the first two integrated trainings.

Training officers from MAR, BPI, and BFD were also involved either in the Training Needs Survey (TNS) or in the implementation of the training program.

Sharing of center resources was demonstrated among the staff exchange during the last quarter.

Two from the technical staff were sent to RTC-ISU and RTC, Visaya to share the center experiences on the Integrated Training Program. Also technical staff from RTC-ISUC, TTC-San Mateo, FTC-Naujan were sent to Region I to experience and observe in the management of Integrated Training Programs.

Courses offered in the Integrated Training Program blended social and production technologies. The major objective was to establish close working relationship among themselves - DPOs, DPEs, - while that of the regular trainings was purely on social technology.

Summary Distribution of Trained  
Participants by Ministry/  
Agency and Region

Region	MA	MNR	MAR	HLJCD	FSDC	NIA
I	218	44	45	23	2	4
II	41	7	14	5	-	-
TOTAL	259	51	59	28	2	4

Training Expenditures

<u>Code</u>	<u>Particulars</u>	<u>Amounts</u>
01	Personnel Services	₹ 188,019.22
02	Maintenance and other Operating Expenses:	
02	Teaching Expenses	15,760.65
06	Other Services	39,823.53
07	Supplies & Materials	48,243.96
10	Direct Expenses (Training)	<u>151,194.47</u>
Total actual expenditures incurred from January 1, 1979 to December 31, 1979		<u>₹440,041.63</u>

Problems/IssuesRecommendations

- |  |   |
|--|---|
| a) Administrative:   | - NCO should work it out better with the NGB;   |
| - budget release is often delayed;   |   |
| - delayed processing of papers (like canvas, Vouchers, etc.);  | - Appointment of authorized personnel to attend to the processing of these papers;              |
| - The Executive Director's directives is sometimes inconsistent due to different NTC representation who come to the center plus such directives; | - Policies/directives should be put into writing for record purposes and proper implementation; |
| - Different training venues tend to fluctuate budget;  | - Attention NCO - help facilitate the delivery of facilities & equipment;                       |
| - There is an inconsistent monitoring of administrative matters;   | - Functions of personnel concerned should be cleared out and well defined.                      |



Problems/IssuesRecommendations

## b) Training Management Team:

- |   |   |
|---|---|
| - Interpersonal problems  | - Regular CD;   |
| - Capable technical staff refused to handle modules in preference of hiring resource persons;   | - Attention NCO;  |
| - There is no standard post training report format;   | - PTC-RD media units should be completed before May 30, 1980;   |
| - Instructional materials were not coursed through the media unit for quality control;  | - Functions of different units should be properly recognized to safeguard the system;                     |
| - There is always an inability to get competent resource persons on production technology because time between SA/TMS and training proper is too short. | - SA/TMS should be conducted earlier plus rigid screening/orientation of resource persons be carried out. |

## c) Participants:

- |   |   |
|---|---|
| - Non-FTC(FLD) trained participants are less responsive;  | - DPOs, should be FLD trained by FTC before they become ITP-RD participants then on specialized programs; |
| - target numbers of participants is not being met due to conflicting agency training schedule and programs; | - Attention NCO/NCB   |

## d) Others;

- |                                       |   |
|---------------------------------------|---|
| - there is limited clientele to train | - Involve other rural development agencies; |
|---------------------------------------|---|



CHAPTER IV

ADMINISTRATION AND SUPERVISION

A. Fiscal Support

The National Government supported the Mountain State Agricultural College for the period from January 1 to December 31, 1979 with a total appropriation of ₦12,239,553.08:

1. Special Account . . . . .	₦ 1,233,546.87
2. General Fund . . . . .	<u>11,006,006.21</u>
Total = = = = =	<u>₦12,239,553.08</u>

The amount represented the expenditure from the budgetary allotments for personal services, maintenance and operation, and equipment outlay for the period under review.

B. Personnel Development

The number of personnel benefited in terms of professional growth and development is indicated as follows:

1. Scholarship Grants . . . . .	10
2. Promotion . . . . .	17
3. Accretions . . . . .	<u>3</u>
Total = = = = =	<u>30</u>

C. School Sites

1. Proposed Land Swap with Benguet Province

A Memorandum of Agreement was executed on July 27, 1979 by the Mountain State Agricultural College

on one hand and the Government of the Province of Benguet on the other hand, whereby the College will exchange 540,421 square meters of its stock farm for six (6) school sites registered in the name of Benguet Province, with a total area of 396,627 square meters.

The agreement was acknowledged on July 27, 1979 as Doc. No. 433, Page No. 86 Book No. II, Series of 1979, in the notarial register of Atty. Alberto B. Cuilan - Clerk of Court, Juvenile and Domestic Relations Court of Baguio-Benguet, La Trinidad, Benguet.

This agreement was ratified by the College Board of Trustees under Resolution No. 38, dated July 27, 1979, and confirmed under Resolution No. 695, dated November 6, 1979, of the Sangguniang Pambalayan of Benguet.

The 540,421 square meters of land of the College is described as Lot 1-B in subdivision plan Sw-1-000288, surveyed on February 8-10, 1977 by Geodetic Engineer Victor M. Gasalan and approved on February 1, 1978 by Regional Land Director Sulpicio A. Tacza. The land is intended as a government center reservation for Benguet Province.

Below are the six (6) parcels of land registered in the name of Benguet Province, but being used by the College for educational purposes:

<u>Title No.</u>	<u>Location</u>	<u>Date Registered</u>	<u>Area (Sq. m)</u>
TCT No. T-13487 Lot 1-A-1	Banig. Balili	Dec. 28, 1978	147,802
LCT No. 23 Lot 2-A	Banig, Balili	March 6, 1969	178,070
TCT No. 179	Iabangaoen, Balili	June 5, 1969	13,625
TCT No. 374	Cabanao, Balili	March 6, 1969	4,875
TCT No. T-6264 Lot 2	Betag	Aug. 31, 1971	19,143
TCT No. T-11151 Lot 1	Betag	Sept. 10, 1976	33,112
Total = = = = =			<u><u>P396,627</u></u> <u>177</u>

The six (6) parcels of land originally had an aggregate area of 464,485 square meters. However, one parcel of land, Lot 1-A, II-11965 Amd., containing an area of 215,650 square meters (of which Lot 1-A-1, with an area of 147,802 square meters of TCT No. T-13487 then formed a part), was reduced by 67,848 square meters under Letter of Instruction No. 758, dated October 28, 1978. Said 67,848 square meters was awarded to 46 Igorot families under the Land Reform Program.

In a letter dated November 28, 1979 to the Honorable Minister of Natural Resources, Lands Director Ramon N. Casanova recommended approval of the proposed land swap between the Province of Benguet and the College. The letter was accompanied by a deed of exchange of real

property proposed to be entered into by the Republic of the Philippines and the Provincial Government of Benguet.

The deed of exchange was signed on November 19, 1979 by the Provincial Governor of Benguet, acknowledged on November 20, 1979 as Doc. 26, Page No. 7, Book No. 1, Series of 1979, in the notarial register of Atty. Francis A. Buliyet of Baguio City. Expected to sign this deed in behalf of the Republic of the Philippines was Hon. Jacobo C. Clave, Presidential Executive Assistant.

## 2. Registered School Sites

Acting Commissioner of Land Registration Federico B. Alfonso, Jr. issued on November 14, 1979 Decree No. N-176417 for the confirmation and registration of title of the Mountain State Agricultural College to two (2) parcels of land forming part of the main campus, more particularly described in survey plan Swo-01-02-00001, sheet 3, to wit:

Lot 7 . . . . .	79,331 sq. m.
Lot 8 . . . . .	<u>130,594 sq. m.</u>
Total = = = = =	<u><u>209,925 sq. m.</u></u>

Application of the College for confirmation and registration of title to the two (2) above-described parcels of land was filed on January 3, 1975 under Land Registration Case No. N-389, Record No. N-46937, in Branch III, Court of First Instance of Baguio and

Benguet, La Trinidad, Benguet.

The application for registration of title of the College was granted by Hon. George C. Macli-ing, Presiding Judge of the aforesaid Court, in a decision rendered on August 3, 1978.

With the decision having become final, the College obtained an order of the Court on July 19, 1979 instructing the Land Registration Commission to issue a decree of registration.

On August 23, 1979, Atty. Francis A. Buliyat, Counsel for the College filed with the Land Registration Commission petition for issuance of decree of registration. The Land Registration Commission issued Decree No. N-176417 on November 14, 1979.

The Register of Deeds for Benguet Province informed the College on December 20, 1979 that the entry in its records of Decree No. N-176417 and for the issuance of the original certificate of title require payment of the following fees:

Assurance Fund . . . . .	P5,116.92
Entry Fee . . . . .	10.00
Issuance of Decree . . . . .	15.00
True Copy of Decree . . . . .	6.00
Legal Research Fund . . . . .	4.00
Total = = = = =	<u>P5,151.92</u>

The College was also required to submit certified true copies of Tax Declaration No. 3231, showing the assessed value of the two (2) parcels of land as ₱2,046,770.00 and a market value of ₱13,645,125.00, and also a certification by the Office of the Municipal Treasurer that the College has no tax delinquency.

With the payment of the above fees by the first week of January, 1980, the College expected within the period to be issued the original certificate of title.

The Office of the Municipal Assessor pointed out that with the issuance of the title and subsequent cancellation of Tax Declaration No. 3231, the assessed and market values of the two (2) parcels of land will be revised under Presidential Decree No. 464, to wit:

	<u>1974</u>	<u>1980</u>
Assessed Value . . . .	₱ 2,046,700.00	₱ 6,187,540.00
Market Value . . . .	13,645,125.00	41,250,262.00

With the issuance of the title and the next tax declaration, the College intends to make use of the two (2) parcels of land as collateral for loans from government or private financial institutions for self-liquidating projects.

3. Petition for Coverage of Titled School Sites under the Land Reform Program - Apparently encouraged by the success of 46 families in being awarded 67,848 square meters out of a titled school site, Lot I-A,

II-11965 And., OCT No. 23, under the Land Reform Program, a group of 79 claimants and/or squatters in August, 1979 petitioned the Minister of Agrarian Reform for the release to them of the tracts of land they are squatting on to wit:

<u>School Site Involved</u>	<u>No. of Petitioners</u>	<u>Area Sought for Release (sq. m.)</u>
Lot 1-A-1, Psd-35170 TCT No. T-13478	48	50,735
Lot 1, Pcs-21375 TCT No. T-11151	10	3,315
Lot 2, II-2947 TCT No. T-6264	<u>8</u>	<u>2,033</u>
Total	<u><u>79</u></u>	<u><u>69,605</u></u>

The petition was transmitted to Agrarian Reform Minister Conrado F. Estrella as an inclosure to a letter dated August 20, 1979 from Mr. Arsenio Luniqued, Agrarian Reform District Officer for Benguet and Mt. Province.

Minister Estrella referred to Provincial Governor Ben Palispis the petition for comment and/or recommendation in a 1st Indorsement dated August 20, 1979.

However, in a joint letter dated June 29, 1979, Provincial Governor Palispis and Assemblyman Andres A. Cosalan had appealed to President Ferdinand E. Marcos not to entertain petitions for release of portions of registered lots of the Province of Benguet and over registered, unregistered, and reserved parcels of land being used by the Mountain State Agricultural College.



They pointed out that the limited provincial lots are needed by the Provincial Administration for its programs and expansion. The two officials also joined the MSAC administration, faculty and students in opposing any release of portions of school lots because the College needs all its school sites in view of the rapidly increasing enrolment and its involvement in national and international programs of research, extension and instruction.

#### D. Infrastructures

##### 1. Classroom/Laboratory Buildings and Facilities -

The status of the class/laboratory buildings and facilities was described in the MSAC Annual Report for SY 1978-1979.

##### 2. Building Construction Projects

- 1 - Campus Road Cementing  
 Location - Main Campus  
 Date Started - January  
 Date Expected to be finished - 1980  
 Percentage of accomplishment to date - 30%  
 Contractor - Administration  
 Total Cost - P200,000.00
- 2 - Agricultural Engineering Building  
 Location - Engineering Area, Main Campus  
 Date Started - September 1975  
 Date Expected to be finished - September 1979  
 Percentage of accomplishment to date - 100%  
 Contractor - F.D. Laxman Construction  
 Total Cost Completed - P3,300,000.00
- 3 - Six Door Faculty and Staff Apartment Housing  
 Location - Housing Area Main Campus  
 Date Started - July 1978  
 Date Expected to be finished - March 1979  
 Contractor - Laita Construction  
 Percentage of accomplishment to date - 100%  
 Total cost completed - P600,000.00



- 4 - Institute of Plant Breeding  
 Location - Swamp Area Experiment Station  
 Date Started - January 1978  
 Date Expected to be finished - March 1978  
 Contractor - Administration  
 Percentage of accomplishment - 60%  
 Total Cost Completed - ₱300,000.00
- 5 - RTC-RD Academic and Administration Building  
 Location - Main Campus  
 Date Started - December 1978  
 Date Expected to be finished - December 1979  
 Percentage of accomplishment - 100%  
 Contractor - Renaissance Construction Co.  
 Inc.  
 Total Cost Completed - ₱2,300,000.00
- 6 - RTC-RD Housing  
 Location - Main Campus  
 Date Started - February 1979  
 Date Expected to be finished - January 1980  
 Percentage of accomplishment - 90%  
 Contractor - Renaissance Construction Co.  
 Inc.  
 Total Cost Completed - ₱1,000,000.00
- 7 - Biological Plant Sciences Building  
 Location - Main Campus  
 Date Started - January 1979  
 Date Expected to be finished - January 1981  
 Percentage of accomplishment - 40%  
 Contractor - Renaissance Construction Co.  
 Inc.  
 Total Cost Completed - ₱4,900,000.00
- 8 - Agro-Forestation Building (Phase I)  
 Location - Amposit  
 Date Started - May 1979  
 Date Expected to be finished - October 1979  
 Percentage of accomplishment - 100%  
 Contractor - Abella Construction  
 Total Cost Completed - ₱425,000.00
- 9 - Machine Shed  
 Location - Main Campus Engineering Area  
 Date started - October 1979  
 Date Expected to be finished - January 1980  
 Percentage of accomplishment - 95%  
 Contractor - Administration  
 Total Cost Completed - ₱300,000.00

- 10 - NFRRTC Building Phase I  
 Location - Swamp Area Experiment Station  
 Date Started - November 1979  
 Date Expected to be finished - March  
 Percentage of accomplishment - 60%  
 Contractor - Vergara Construction  
 Asian Fabricators  
 Total Cost Completed - 11,500,000.00 (Phase I)
- 11 - Agro-Economics Building  
 Location - Main Campus  
 Date Started - November 1979  
 Date Expected to be finished - January 1980  
 Percentage of accomplishment - 94%  
 Contractor - Renaissance Construction  
 Co. Inc.  
 Total Cost Completed - 1,676,000.00
- 12 - Food Processing Building  
 Location - Main Campus  
 Date Started - November 1979  
 Date Expected to be finished - February 1980  
 Percentage of accomplishment - 90%  
 Total Cost Completed - 1,400,000.00
- 13 - Training Department  
 Location - Main Campus  
 Date Started - November 1979  
 Date Expected to be finished - May 1980  
 Percentage of accomplishment - 40%  
 Contractor - Renaissance Construction  
 Co. Inc.  
 Total Cost Completed - 11,560,000.00
- 14 - Agro-Forestation Building (Phase II)  
 Location - Ampasit  
 Date Started - November 1979  
 Date Expected to be finished - March 1980  
 Percentage of accomplishment - 92%  
 Contractor - Vimar Construction  
 Total Cost Completed - 1,434,000.00
- 15 - Multi-Purpose Machine Shed for Experiment  
 Station  
 Location - Swamp Area Experiment Station  
 Date Started - January 1980  
 Date Expected to be finished - March 1980  
 Percentage of accomplishment - 90%  
 Contractor - Spectrum Construction  
 Total Cost Completed - 1,424,000.00

16 - Digester Room for Soils-Chemistry Building  
 Location - Main Campus  
 Date Started - January 1980  
 Date Expected to be finished - May 1980  
 Percentage of accomplishment - 10%  
 Contractor - Administration  
 Total Cost Completed - P200,000.00

### 3. Campus Concrete Road Construction

A distance of 539 meters of two-lane road from Gate No. 4 to the Secondary Vo-Ag Building was paved with concrete as of 1979.

A two-lane road covering a distance of 468 meters from the Secondary Vo-Ag Building to the Laboratory School at Ilang and the proposed main gate road, including the side road for loading and unloading as planned were not yet started. To finish the road and main gate plan, an appropriation is needed for 3,200 bags of cement, 200 cubic meters of sand, 390 cubic meters of gravel and other services.

### E. Board Resolutions Approved

The Board of Trustees of the College held four (4) meetings from July to December, 1979. It passed and approved thirty-six (36) Board Resolutions. Among the most important ones that relate to College policies and programs are the following:

#### Res. No. 38, s. 1979

RATIFYING the Memorandum of Agreement between the NSAC and the Government of Benguet Province a propose of an exchange of real properties, whereby NSAC releases some 94,0421 hectares to the Province, and Benguet on the other hand transfers to NSAC all the titles of some 39,6627 hectares as stipulated in the Agreement; and authorizing the College President to sign for and in behalf of the NSAC.

Res. No. 39. s. 1979

APPROVING the integration of the Administration, supervision, management, property, and budget and plantilla of personnel of the RPC-RO to the MSAC, effective July 1, 1979.

Res. No. 41. s. 1979

APPROVING the proposed policy on the delimitation of research and development activities of members of the faculty subject to slight simplification of the proposed guidelines as suggested by the Board.

Res. No. 42. 2. 1979

APPROVING the proposed policy on faculty-staff housing accommodation, subject to the suggestion that the ranking system or criteria for selecting the beneficiaries be reviewed, and the least contract be made more simple.

Res. No. 43, s. 1979

APPROVING the amendatory/additional terms and conditions in any and all scholarship agreements between the College and the grantee thereof, effective the 2nd semester, SY 1978-79, as presented.

Res. No. 48, s. 1979

APPROVING the amendment to Board Resolutions No. 30, s. 1973 and No. 30, s. 1974, increasing the number of MSAC ROTC/WATC officers enjoying 75-100% tuition fee privilege from seven (7) to twelve (12) of them, effective the first semester, school year 1979-1980; Provided, that henceforth, all of them including the Corps Commander shall enjoy 75% each tuition fee privilege; Provided further, that the Corps Commandant shall be responsible to recommend the beneficiaries thereof; Provided finally, that the College President shall approve of the same.

Res. No. 52, s. 1979

AUTHORIZING the Mountain State Agricultural College, represented by its President, Dr. Bruno M. Santos, to enter into contracts/agreements with the Renaissance Builders' Company, Inc. for the construction of (1) The Elementary Training Department Building for \$1,548,000.00, and the (2) Agri-Economics Building for \$662,000.00; with the G.A. VERGARA Construction for the construction of the (1) Northern Philippines Root Crops Research and Training Center Complex (Phase I), and the (2) Earthfill at the construction site of the same complex, all for \$204,000.00 and with the Z.R. SIGNEY Construction for the installation of electrical works at the Bio-Science Building, for \$10,680.00 all in accordance with the terms and conditions provided for and stipulated in each particular contract/agreement as presented in the final drafts of the documents.

Res. No. 56 s. 1979

APPROVING the award made by the College to the VIMAR Commercial & Construction for the construction of the (1) Agro-Forestry Building, Phase II for \$437,260.00, and the (2) Community Food Processing Building, for \$399,150.00 on the assurance of the College President that funds for the projects are available, that the BPV has a hand in overseeing the same, and that invitation to bidders were duly publicized; and granting authority to the College, represented by its President to enter into contract with the winning bidder, and for him to sign the contract for and in behalf of the College; Provided that future requests for authority on similar projects shall be accompanied with (1) copies of bid proposals, (2) abstract of bids, and (3) final drafts of proposed contracts and/or agreements.

Res. No. 57, s. 1979

ACTING on and by virtue of its authority and powers under R.A. No. 5923, as amended by PD No. 1437, and in pursuance to the provisions of PD No. 6, dated 27 September 1972, and premised on the facts and records presented, one, Miss Marietta Q. Quianson Assistant Instructor, is hereby considered RESIGNED from her position in the Mountain State Agricultural College, for (1) gave misconduct, (2) dishonesty, (3) repetition of similar acts in spite of previous punishment and promise not to repeat the same, and



(4) conduct prejudicial to the service, effective December 31, 1979.

Res. No. 60, s. 1979

CONFIRMING the incentive/overtime pay given to workers at the College Canteen in accordance with the Memorandum issued by the College, dated October 5, 1979; Provided, the ceiling for each claim shall not exceed ₱200.00 per month.

Res. No. 63, s. 1979

APPROVING the request for authority to enter into contract with the Trans-Solar Technical Enterprises for the preparation of engineering works relative the building and other physical projects of the College; Provided, the specific job/building projects are spelled out in the terms and conditions of the contract, and subject to confirmation by the Board.

Res. No. 67, s. 1979

APPROVING in principle the KSCC Research Policies and Guidelines for the Determination of Honoraria of Researches subject to the refinement of same along the suggestions of the Board that the types of research projects be classified or regrouped as (1) special research projects approved by PCARR and funded by external agencies, (2) special research projects approved by PCARR and funded by local agencies, and (3) faculty/student research projects approved by the College Research Council (CRC) and funded out of the appropriation of the College; Provided, the honoraria shall be given only to researches for special research projects conducted over and above the maximum teaching loads of members of the faculty.

Res. No. 68 s. 1979

APPROVING the moderate increase in the various school fees as an amendment to previous Board Resolutions on the matter, effective the first semester, school year, 1980-1981; Provided, the fees are classified as regular and/or special trust funds for special purposes.

Res. No. 69, s. 1979

APPROVING or granting to the Mountain State Agricultural College to adjust the rate of its Contract with the TOP Security and General Services, Inc. from ₱620.00 to ₱680.00 per month, per guard, effective September 1, 1979; and another adjustment of ₱30.00 per month, per guard, effective January 1, 1980, pursuant to PD No. 1634 and LOI No. 916.

Res. No. 71, s. 1979

CONFIRMING the Contract made and entered into by and between the NSIC as the Owner, represented by its President, Dr. Bruno M. Santos, and the ASLAN Fabricators, Inc. as the Contractor, represented by its Vice President for Marketing Mr. Felipe T. Mateo, Jr. and its Executive Vice President Mr. Raul T. Guerrero, for the fabrication of steel trusses, purlins, anchor bolts, and GI roofing (excluding painting) for its on-going construction of the Northern Philippines Root Crops Research and Training Center, Phase I, for a contract price of Two Hundred Twenty-Three Thousand Three Hundred Forty-Nine Pesos and 75/100 (₱223,349.75), as provided for in the Contract.

A P P E N D I X



A. Graduate Theses

EMBUIDO, ALFONSO G. March 1978. An Integrated Control of Diamondback Moth on Cabbage. Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Prof. F. G. Hermano

The effect of integrating chemical control with cultural control methods as well as with plant resistance against diamondback moth in cabbage was studied in an experiment conducted at the Experiment Station, Mountain State Agricultural College, La Trinidad, Benguet, from January to April, 1976. The experiment used a split plot design replicated three times.

Three cabbage varieties were used, namely: Glory of Enkhuizen, an oblong-head variety, Marion Market, a round-head variety, and KY Cross, a flat-head variety. Marglobe, an indeterminate variety of tomato was used as an intercrop. Cartap Hydrochloride or Vegetox 50% WP (1,3-bis(carbamolthio)-2-(N,N-dimethyl amino propane hydrochloride), applied at the recommended rate of 22 grams per 5 gallons of water was tested at two application intervals of weekly and bi-monthly.

Of the three cabbage varieties, Marion Market performed better than either Glory of Enkhuizen or KY Cross in terms of degree of damage and yield. However, there was no significant difference among the three varieties based on larval population.

The tomato intercrop provided a better control over the cabbage without intercrop in terms of the number of larvae, degree of damage and yield. Likewise, effective control of the insect was obtained with Vegetox when applied at weekly interval. Only intercropping and frequency of insect in terms of degree of damage and larvae population. There was no interactions among the three used (variety x intercropping x frequency).

FELICITAS, AVELINO, JR. B., May 1979. The Status of Agricultural Extension Technicians in Region I. Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Dr. Eriberto C. Alonzo

This study was designed primarily to appraise the status of agricultural extension technicians in Region I during the calendar year 1977. Specifically, it sought to gather information about the following: (1) What are the qualifications of the Bureau of Agricultural Extension Technicians in Region I: (a) educational attainment (b) civil service eligibilities (c) honors, awards and citations received (d) published and unpublished books and articles (e) position, rank or designation; (2) What are the functions of the field technicians; (3) What are some of the socio-cultural factors that technicians are involved in; (4) How do the field technicians evolve, implement and evaluate their programs; (5) What are the problems encountered by technicians in the implementation of their programs; and (6) How do the field technicians remedy their extension problems.

The needed data were gathered by means of survey questionnaires after which percentages were taken on the background information and socio-cultural factors. Data on programming, problems and solutions offered by them were analyzed employing the Chi-Square ( $\chi^2$ ) test.

All the 1,257 technicians (FMT, HMT & RYDO) of the Bureau of Agricultural Extension in Region I were the respondents; however, 927 technicians (74 percent) returned the questionnaires.

Three hypotheses that were advanced were highly significant and were rejected.

Results of the study revealed that most of the technicians are still young in the service; most of them are agriculture graduates; more than one-half are married and have dependents to support; majority of them are majors and minors in the different agricultural sciences but very few of them have earned graduate units. More than one-half of the technicians are eligibles; few of them are recipients of awards; around 9 per cent have published articles; and almost all of them have attended one or more trainings and seminars.

More than four-fifths of the respondents are Farm Management Technicians and the rest Home Management Technicians or Rural Youth Development Officers. Most of them claim that their duty is to teach and educate farmers on the modern methods of farming. Most of them are in the BAEs and in their present jobs, from a month to five years.

More than one-half of the married technicians claim that their husband or wives are employed in the government service; most of them have insufficient income (both husband and wife) due to high cost of living, low salary, high prices of commodities and the life.

More than one-fifth of them have either duties or work aside from their regular jobs; very few of them receive honorarium pay, while most of them receive travel allowances and per diems. One-fourth of the technicians have projects like: pig-breeding, poultry, farming, gardening and other business ventures. Most of them spend their leisure time wisely by reading books and magazines, gardening, crocheting, caring animal projects, handicraft and others.

Fifty percent of the technicians do not smoke; more than one-half drink liquor; more than two-thirds do not gamble and do not go to night spots; around one-half have homes of their own, others do not have or they stay in boarding houses or rent houses. Majority of them have home appliances and equipment. More than one-fourth transferred from other agencies and have joined the BAEs for higher salary, greener pasture and other reasons that were justifiable.

The most common methods employed by the technicians in evolving, implementing and evaluating their programs are: analysis of the situation through survey and research; based on the problems and needs of the people; on previous programs; seek help of clientele, peers, superiors and local officials; individual and group contact as well as getting feedbacks from clientele. Most of them measure their success or failures in the field based on the accomplishment of clientele; set goals and objectives; on reactions and cooperation of the people and improve living conditions of the clientele.

Majority of the technicians employ linkages in the implementation of their program. The most common problems in linkages are: lack of cooperation; lack of interest in group work; overloading of work; lack of personnel, compensation and overtime pay.

The most common problems confronting the technicians in evolving, implementing and evaluating their program are the following: Farmers have adamant attitude and resistant to change; financial problems; lack of farm and office supplies and equipment; lack of irrigation water and transportation facilities; lack of technical training; lack of cooperation; collection of loan repayments; prevalence of some pests, diseases and natural calamities and interference of some agencies in the program.

A few of the technicians have problems with regards to their bosses and peers. More than four-fifths have problems about their clientele, among them are: resistance to change; delinquency in paying loans; lack of cooperation; lack of attendance during meetings; illiteracy and lack of technical know-how.

Common solutions offered by technicians in solving their problems in evolving, implementing and evaluating their programs and problems on linkages are: using different strategies and approaches in extension like meetings and conferences, demonstration, individual and group contact; farm and home visitation; efficient information drive; guiding farmers to acquire loans; foster cooperation; coordination and public relation; seeking the help of clienteles, peers, superiors and local officials and utilizing available personnel and manpower.

Fostering camaraderie, cooperation, coordination and public relation; seminars, workshops, training and conferences; seeking the help of local officials and various agricultural extension approaches are employed in solving their problems regarding their bosses, peers and clienteles and regarding their work.

If given the authority to solve problems on programming, linkages and other problems, majority of the technicians suggested these solutions: prioritize the needs of the people; foster cooperation; employ diplomatic approach; conduct trainings and seminars to upgrade the competencies of technicians and involve the local officials in the program.



## B. Undergraduate Theses

ALABANZA, NATIVIDAD B., June 1979. Controlling Defloration of Sweet Pea (*Pisum Sativum*). Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Dr. C. J. Oliveros

The study was conducted to determine the effects of polyoxin, IBA, NAA, turton, sugar solution, compleasal calcium and boric acid, and in solution on the prevention of falling off of flowers, on the yield of sweet pea.

The treatments used in this study were:  $T_0$  = control;  $T_1$  = 3ppm polyoxin;  $T_2$  = 3 lb/gal turton;  $T_3$  = ppm IBA;  $T_4$  = 3 ppm NAA;  $T_5$  = sugar solution,  $T_6$  = 4 lb/gal compleasal;  $T_7$  = 1 ppm Ca ( $NO_3$ )<sub>2</sub>;  $T_8$  = 1 ppm boric acid;  $T_9$  = 2 ppm Ca ( $NO_3$ )<sub>2</sub>;  $T_{10}$  = 2 ppm boric acid;  $T_{11}$  = 3 ppm boric acid.

Highly significant effects on the total number of flower buds formed at 50 and 65 days after planting, the total number of flowers that fell, total number of flower buds formed at pod maturity, yield of dry seeds and plant heights were obtained with the application of the recommended concentrations of polyoxin, IBA, NAA, turton, sugar solution, compleasal, calcium and boric acid in solution. The application of 3 ppm boric acid in solution, gave the highest total number of flower bud formation, lowest degree of defloration and highest yield of dry seeds.

ALUPLAS, LUCICIA A. March 1980. Preliminary Study on the Ecological Succession of the Major Insect Pests of Chinese Cabbage. Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Mr. E. Cardona, Jr.

The ecological succession of the major insect pests of Chinese cabbage was studied to determine the insect infestation of the crop plants and the stages they are prevalent. The nature of the damage of the insects was also observed. Evaluation measures considered were: population count, occurrence and nature or damage. The adults of fleabeetle and larvae of diamondback moth were counted manually and the aphids were counted by colonies. Ten hills per plot were considered as samples from the complete block layout of the experiment.

The fleabeetle was the most common insect observed, followed by diamondback moth and aphids. The fleabeetle damaged the plant by making holes on the leaves, the diamondback moth damaged the underside of the leaves, and the aphids attacked the crop by sucking the sap of the leaves.

The fleabeetle, diamondback moth and aphids were observed infesting throughout the growth stages of the Chinese cabbage.

BALUSCANG, ZACARIAS A., JR. October 1979. Varietal Resistance of Potatoes Against *Rhizoctonia Solani*. Mountain State Agricultural College, La Trinidad, Benguet.

Adviser: Prof. L. M. Villanueva

Ten potato varieties were screened for their resistance against black scurf caused by *Rhizoctonia solani* under greenhouse condition.

Results showed that varieties Red Pontiac and Conchita were resistance while Franzi and Achat were rated moderately resistant. Moderate susceptibility was exhibited by the varieties. Cosima and Nordstern were rated susceptible. However, some of the varieties tested showed tolerance to the disease.

High significant differences were observed on the mean weight of marketable tubers. Franzi had the highest mean marketable tubers, followed by Hydra, Cordia, Ilona and Nordstern. The lowest was obtained from Atika.

BANDONG, CORAZON, P., March 1979. Chemical Control of *Rhizoctonia* in Potatoes. Mountain State Agricultural College, La Trinidad, Benguet.

Adviser: Prof. E. B. Akiew

This study was conducted at the M.S.C. Experimental Station using the split-plot design from May 1, 1979 to July 30, 1979 to evaluate the efficacy of the two methods of application and the various chemicals which will inhibit spore germination and mycelial growth of *Rhizoctonia* in potatoes.

Two methods of application and five fungicides were used to treat potato seedpieces in controlling *Rhizoctonia*. The two methods of application and five fungicides were the following:

<u>Fungicides</u>	<u>Methods</u>
T <sub>0</sub> -Control	M <sub>1</sub> -dusting
T <sub>1</sub> -Daconil 50 wp	M <sub>2</sub> -drenching
T <sub>2</sub> -Fungitox	
T <sub>3</sub> -Dithane M-45	
T <sub>4</sub> -Benlate	
T <sub>5</sub> -Captan	

Results showed that there were no significant differences between the two methods of application of fungicides. All fungicidal treatments showed significant effect than the untreated plants. However, plants treated with Benlate and Fungitox gave the most effective control and produced more yield than the others. Control plants were severely infected and registered the least yield.

Likewise, there was no significant interaction between the two methods of fungicide application and the five fungicides used.

BASALOG, ANDRES A. July 1979. Fungicidal Screening Against *Phytophthora Infestans* of Tomato.  
Adviser: Prof. E. B. McKew

Four fungicides were screened against late blight (*Phytophthora infestans*) of tomato at the Experiment Station, Mountain State Agricultural College, La Trinidad, Benguet, from December 1978 to April 1979.

Fungicides used were: Daconil 2787 at 0.50, 0.75, and 1.0 kg a.i./ha; Difolatan at 1.5 kg a.i./ha; Dithan M-45 at 1.5 kg. a.i./ha; and Ridomel at 0.80 kg. a. i./ha. The treatments were arranged following the randomized complete block design (RCB).

Ridomel and Dithan M-45 gave the best control against late blight; however, all fungicides used gave varying degree of control on the leaves, stems, fruits, and fruit petiole. Slight reduction on yield by fungus was observed. This was due to the delay in infection which actually came during the later part of the experiment. Most of the plants were able to produce enough fruits before severe infection took place.

B I A S E, LINDA M. March 1979. Repayment Deficiencies of Agricultural Loans in Buguias, Benguet, 1977-1978.  
Mountain State Agricultural College, La Trinidad Benguet.  
Adviser: Miss Herminia L. Arcena.

Based on the data gathered, Buguias had the highest number of farmer-borrowers in the Mountain Provinces, 94 per cent of whom were delinquent.

Some 50 farmers were randomly chosen as respondents and were classified by farm size (16 small, 19 medium, and 15 large.)

The average farmer interviewed was 37 years old and had been farming for 13 years, nine years of which was spent operating the present farm. He had five years formal education and was receiving an annual income of P1,576 for work other than farming.

The most common reasons for non-repayment of agricultural loans, were: money spent for other purposes, low production, low market price, and bankruptcy.

Based on the correlation analysis and test of significance at 5 per cent level, the factors that are highly correlated to repayment delinquency are farm receipts and income from other sources. This means that as these factors increase, repayment delinquency decreases. When intercorrelated, other factors affect repayment delinquency indirectly as shown by high correlation coefficient obtained.

Problems commonly encountered were unavailability of quality seedlings, low market price, lack of market outlets and high cost of delivery. Solutions recommended by the respondents were: having an action or a program that will stabilize market price of produce, installing storage facilities, and establishing well organized cooperatives.

BUYAGAWAN, EWANGELINE B. March 1979. Cost and Returns Analysis of Potato Production in La Trinidad, Benguet, 1979. Mountain State Agricultural College, La Trinidad Benguet.

adviser: Mr. S. Serrano

Existing cultural and management practices and the profitability of potato production in La Trinidad, Benguet, were compared among farms which were classified according to tenure and size based on primary data collected from 30 potato farms of Fucuis, Pico, Buyagan, Balili, Lubas, and Alno.

Leased farms which has an average effective crop area of 1,844 square meters yielded 128 kilograms per 100 square meters with a fixed investment of P120.00 per unit area. The owner-operated farms with an average effective crop area of 1,704 square meters yielded 204 kilograms per 100



square meters at a fixed investment of P4,726 for said unit area.

With respect to farm size, small farms yielded 184 kilograms per 100 square meters while medium and large farms realized 161 kilograms and 192 kilograms, respectively. The cost incurred per kilogram of potato produced was P1.78, P0.65 and P0.82 for small, medium and large farms. Small farms incurred the highest cost because the marginal returns per peso cost added was relatively small that could not pay off the added cost.

Returns above total cost per 100 square meters for leased farms was P165 while the owner-operated farms had P322 because the leased farms realized lower physical production.

The respective returns above total cost for small, medium and large farms were P113, P270 and P212 with a total cost per 100 square meters of P406, P287 and P140.

Increased productivity of the potato farms studied could be realized by increasing the area under cultivation, minimizing investments on buildings and machineries which are of minor importance to the farmers, avoiding usury loans, and minimizing hired labor which contributes much to cash cost.

CASABAR, VIRGINIA Q. March 1979. Effect of Delaying Harvesting Dehaulm Potato Varieties of the Market Quality and Storageability of Tubers. Mountain State Agricultural College, La Trinidad, Benguet. Adviser: Prof. F.C. Hermano

This study was conducted to determine the effect of delaying harvesting dehaulm potato varieties on the market quality and storageability of tubers.

The three varieties used were: Fina ( $V_1$ ), Cosima ( $V_2$ ), Red Pontiac ( $V_3$ ). The cutting interval of vines were: No cutting ( $C_0$ ), cutting 7 days ( $C_1$ ), cutting 14 days ( $C_2$ ) and cutting the vines 21 days before harvest ( $C_3$ ). The study followed the split-plot design with the varieties as the main plot and the cutting intervals as the sub-plot.

Results revealed that Cosima had tubers less injured after harvesting and after transportation. It also had

the best market quality, less number of infected and sprouted tubers compared to the two varieties used. However, Red Pontiac (V<sub>3</sub>) had thicker skin as compared to Cosima and Fina.

Potatoes harvested with the vines cut 21 days before harvest gave the lowest degree of injury. Likewise, tubers with vines cut earlier before harvest together with no cutting had lower respiratory rate than those with vines cut three weeks before harvest. This observation resulted to the longer life of tubers.

CHAKITON, ROGELIO B. May 1979. Survey and Identification of Plant Parasitic Nematodes Associated with Potato in Benguet. Mountain State Agricultural College, La Trinidad, Benguet.  
adviser: Prof. L. Villanueva

The survey was conducted in the municipalities of Atok, Buguias and La Trinidad, Benguet. Soil and root processing and identification of nematodes were conducted at MSAC Plant Pathology Laboratory from March 19, 1979 to May 30, 1979. In each of the three municipalities involved in the study, five places were assigned as sampling sites. Ten soil and ten root samples were collected at random in every sampling site.

The results of the study showed that four genera of plant parasitic nematodes were associated with potato in Benguet. They were Helicotylenchus spp. (Spiral nematode), Meloidogyne spp. (Root-knot nematode), Pratylenchus spp. (Root lesion nematode), Longidorus sp. (Needle nematode). Helicotylenchus spp. and Meloidogyne spp. were found widely distributed throughout Benguet Province. Pratylenchus spp. was detected only in Atok and Buguias. Out of the samples collected, only one Longidorus spp. was detected. This genus was found in Botocan, Buguias.

DINCOG, FIDEL A. June 1979. Performance of Sweet Pea Intercropped with Pechay, Onion and Chinese Cabbage with Different Rates for NPK. Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Dr. C. J. Oliveros

A study on the performance of sweet pea with different intercrops and rates of NPK was conducted at the MSAC Research Center from December 28, 1978 to March 29, 1979.

The study revealed that intercropping sweet pea with onions had no serious effect on the performance of sweet pea with respect to growth and yield. Instead it served an additional source of income. A combination of onion and pechay in which pechay was planted at the center had significantly reduced the yield of sweet pea, however, the decrease was recovered by the yield of pechay and onion. The total income derived from the pechay, Chinese cabbage, and sweet pea ( $C_2$ ) has exceeded that of the monocrop ( $C_0$ ). On the other hand, Chinese cabbage and pechay planted at the same time separately or in combination as intercrop (transplanted) had adversely affected the performance of sweet pea. The reduction in yield of sweet pea was not even recovered by the yield of the intercrops. This was due to the fast growth of Chinese cabbage and pechay seedlings which were planted at the same time with sweet pea. Sweet peas were outgrown and covered by the spreading and robust vegetation of pechay and Chinese cabbage.

The study further revealed that the increasing rate of fertilizer increased the total yield which was significant at 1% level. This is due to the increasing yield of the intercrops. No significant improvement, however, was observed in the performance of sweet pea alone as the fertilizer rate was increased from 210-150-150 kg. NPK/ha. to 300-200--kg. NPK/ha.

ESPINOZA, EDUARDO C. October 1979. Evaluation on the Growth and Yield of agaricus Bisporus (Wet Season). Mountain State Agricultural College, La Trinidad, Benguet.  
adviser: Prof. E. B. Ariew.

The screening of four strains of French mushroom (agaricus bisporus) was conducted during the wet season at the Mountain State Agricultural College, Mushroom Project from June to September 1979.

The strains tested were as follows:  $S_1 = M_3K$ ,  $S_2 = 303$ ,  $S_3 = 444$ , and  $S_4 = 750$ .

Prolonged emergence of pinheads on strains 750 and 444 were due to the damage caused by rats and dehydration of the top of the compost planted with these strains. Significant differences were obtained between strain  $M_3K$  ( $S_1$ ) and strains 750 ( $S_2$ ) and 444 ( $S_3$ ) except for strain

303(S<sub>2</sub>) in terms of yield. However, the buttons of strains M<sub>3</sub>K were smaller and easily opened compared with the buttons of the other three strains.

Severe infestation of insect pest and the occurrence of disease practically shortened the production period from a minimum of 2 months to only 3 weeks. Likewise, this resulted in poor production performance of all the strains.

FALAG-EY, GABRIEL F. July 1979. Study on Potato Virus Transmission by Green Peach aphid (*Myzus Persicae*, Sulzer). Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Mrs. L.M. Colting

This study was conducted under greenhouse and field conditions. Under greenhouse condition, green peach aphids were made to acquire virus from the virus-infected potato plants, then were transferred to the test plants to transmit the virus. Under field condition, the plants at 70-day maturity were harvested and planted in the field for further observation and data collection.

Twenty-seven clay pots were planted with certified Cosima Variety. The treatments were replicated three times and arranged following the completely randomized design (CRD).

The following treatments used were as follows: T<sub>0</sub> (control), T<sub>1</sub> (two aphids), T<sub>2</sub> (four aphids), T<sub>3</sub> (six aphids), T<sub>4</sub> (eight aphids), T<sub>5</sub> (ten aphids), T<sub>6</sub> (12 aphids), T<sub>7</sub> (14 aphids), and T<sub>8</sub> (16 aphids).

Aphids were introduced to the test plants once, when the plants were 21 days old. To maintain the required number of aphids on the test plants, a fine plastic screen was wrapped around the aphid-inoculated leaf.

Results revealed that the untreated plants produced more yield than those treated with aphids. However, there was inconsistency in the data gathered; hence, the number of virulent aphids capable of transmitting the virus disease cannot be ascertained. The reasons were attributed to improper handling of the test insects, lack of pure seeds, and lack of greenhouse to protect the test plants from outside virus vectors.

FERRER, MYRNA J. October 1979. Screening for Bacterial Wilt Resistance on White Potato. Mountain State Agricultural College, La Trinidad, Benguet.  
 Adviser: Prof. E. B. Akiew

This study was conducted to test and determine the bacterial wilt resistance of 15 varieties of white potato. The different varieties were: Condia, Grandefolia, Conchita, Japanese white, Achta, Nordstern, Barolina, Hydra, Atika, Omega, Ilona, Cosima, Great, Rebus, and Innes.

The percentage of susceptibility of 15 varieties of white potato to bacterial wilt disease were observed not significant at the five per cent level of significance. At 1.05, the first appearance of symptoms of bacterial wilt on variety Ilona was noted to be significantly later than the other fourteen varieties.

There is no significant difference on the number of stems that finally died were evidently among the 15 varieties of white potato. With respect to the yield of these 15 varieties on white potato significant difference were observed to be high at the 5 per cent level of significance. The yield of variety Condia was significantly higher than the yield of Conchita and Atika.

GANDEZA, AMBROSIO T. October 1979. The Effect of Organic-Inorganic Fertilizer Combinations on the Production of Asparagus. Mountain State Agricultural College, La Trinidad, Benguet.  
 Adviser: Prof. Conrado J. Oliveros

The effect of organic-inorganic fertilizer combinations on the production of asparagus was studied at the Mountain State Agricultural College Experiment Station from October 1978 to March 1979.

The different organic-inorganic fertilizer combinations used were: C<sub>0</sub> (control), C<sub>1</sub> (1 can chicken dung per hill +100N/ha.), C<sub>2</sub> (2 cans chicken dung per hill +100 N/ha.), C<sub>3</sub> (3 cans chicken dung per hill + 100 N/ha.), C<sub>4</sub> (4 cans chicken dung per hill + 100 N/ha.), C<sub>5</sub> (1 can chicken dung per hill + 100-100-100 NPK/ha.), C<sub>6</sub> (2 cans chicken dung per hill +100-100-100 NPK/ha.), C<sub>7</sub> (3 cans chicken dung per hill +100-100-100 NPK/ha.), C<sub>8</sub> (4 cans chicken dung per hill + 100-100-100 NPK/ha.) and C<sub>9</sub> (5 cans chicken dung per hill + 100-100-100 NPK/ha). The measuring can used was that of the evaporated milk.



The combination of 1 can chicken dung per hill + 100 N/ha (C<sub>1</sub>) significantly increased the rate of spear production, growth increment, water and protein content of spears and hastened the formation of leaves. When the amount of chicken dung was increased and combined with either 100N/ha. or 100-100-100 NPK/ha. the rate of spear production, growth increment, water and protein content of spears did not correspondingly increase. This shows that asparagus does not respond to too much fertilizer and that the addition of fertilizer rate beyond 1 can chicken dung per hill + 100 N/ha. would only mean loss of fertilizer.

Results also showed that the application of phosphorus and potassium does not have significant effect on asparagus.

HIDALGO, APOLONIA C. March 1979. Cost and Returns Analysis of Garden Pea Production in La Trinidad, Benguet, 1978. Mountain State Agricultural College, La Trinidad Benguet.

Advisor: Mr. S. Serrano

The study was conducted (1) to determine the costs and returns of producing garden pea per given unit of land, (2) to determine the cultural practices and labor utilization in garden pea production, and (3) to determine the earnings on capital invested. A total of 31 respondents were proportionately sampled in the six barrios of La Trinidad, Benguet. Data were collected through personal interviews with the use of a pre-tested interview schedule.

The chi-square ( $X^2$ ) test was used in testing the null and alternative hypothesis with regard to labor utilization. Based on this, the results of the test showed significant differences in labor utilization among the three tenure groups.

Of the 31 respondents, 16 or 51 per cent were owner-operator, ten or 32 per cent were lease-operator and five or 16 per cent were tenants.

High capital earnings and total family income were realized by owned operated farms followed by tenant operator and leased operated farms. This denoted that capital investment, operating expense and labor utilization were very efficient on owned-operated farms.

JULIN, LILY D. October 1979. Screening of Insecticides Against Leaf Miner (*Phytomyza Horticola*, Goureaux) of Sweet Pea. Mountain State Agricultural College, La Trinidad, Benguet.  
 Adviser: Mrs. L. M. Colting

Screening of insecticides against leaf miner of sweet peas was studied to determine the most effective among those recommended in the market. It was conducted at the Mountain State Agricultural College, from February to April, 1979. The test insecticides were: Azinos 40 E.C., Agchemox 500 E.C., Sumicidin 3 E.C., Azodrin 202 E.C. and Roxion 40 E.C. Effectiveness was based on larval count, percentage degree of damage and weight of pods harvested.

Result showed that all the insecticides tested were effective in reducing leaf miner population and damage.

JARANILLO, NORMA E. May 1979. Effect of Different Distance of Planting on the Growth & Yield of Carrots. Mountain State Agricultural College, La Trinidad, Benguet.  
 Adviser: Prof. F.G. Horwano

The Effect of different distances of planting on the growth and yield of carrots was studied. The five different of planting were: 10cm, 15cm, 20cm, 25cm and 30cm.

Plants spaced at 30cm were significantly the tallest. Among the treatments, however, there were no significant differences in the length, diameter and weight of roots produced; yield of marketable roots, and weight of non-marketable roots. The lightest roots were obtained from the plants spaced at 30 cm.

JARAVATA, LETICIA C. October 1979. Culture of Asparagus: Production of Seedlings. Mountain State Agricultural College, La Trinidad, Benguet.  
 Adviser: Prof. C. G. Oliveros

The study was conducted from November 1978 to June 1978 at the Mountain State Agricultural College Experimental Station to determine the effects of soaked and unsoaked seeds, the best media and the most desirable depth of planting for the production of asparagus seedlings.

The effect of soaked and unsoaked seeds were compared. the media used were: garden soil, 1/2 garden soil + 1/2 compost; 1/2 sand + 1/2 compost and 1/3 garden soil + 1/3 sand + 1/3 compost. The four depths of soil cover were: 1/2, 1, 1 1/2 and 2 inches.

It was found that seedlings produced from soaked seeds exhibited better growth performance. They had higher percentage of germination, emerged earlier, produced more spears and had shorter number of days when seedlings were ready for transportation.

Comparison of the means on the depth of seed cover showed that sowing or planting, at a depth of 1/2 inch produced higher number of spears, high percentage of germination and emerged earlier.

Results showed that media composed of 1/3 garden soil + 1/3 sand + 1/3 compost produced higher number of spears, and seedlings were developed earlier. However, results showed that garden soil produced seedlings of higher percentage of germination.

Results of the study showed that soaking of seeds is necessary to awaken dormant seeds. It is further recommended that soaked seeds be planted in a soil containing garden soil, sand and compost and to be planted at a depth of 1 to 1 1/2 inches.

MANGILING, ARSENIA F. October 1979. The Effect of Root-Knot Nematode on the Severity of Bacterial Wilt of Potato under Highland Condition. Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Prof. L. M. Villanueva

The effects of root-knot nematodes on the severity of bacterial wilt of potato was studied at the Mountain State Agricultural College Plant Pathology Research Laboratory and Mushroom Project from April to July 1979.

The treatments used were T<sub>0</sub> (control), T<sub>1</sub> (nematode alone), T<sub>2</sub> (bacteria alone), T<sub>3</sub> (nematode and bacteria). The influence was evaluated based on the root galling index, number of egg masses, number of wilted plants, weight of marketable and non-marketable tubers and plant parts above the ground.



Results of the experiment showed that the development of bacterial wilt was more severe in potato growing in soil to which 500 eggmasses of Meloidogyne incognita has been added than in soil without the nematode. Lower galling and eggmasses indices were observed on those plants than those inoculated with nematode alone.

Planters inoculated with nematode and bacteria were not able to produce marketable tubers. Further evidence is presented to show that combined action of these two pathogens was more detrimental to potato plants than when the two are present alone.

LIHANG, N., BETTY D. October 1979. The Tribal Rituals on Rice Production In Banaue, Ifugao. Mountain State Agricultural College, La Trinidad, Benguet. adviser: Prof. C. C. Consolacion

This study was conducted in Banaue, Ifugao from November to January 1979: (1) to know the various kinds of tribal rituals, followed by Banaue rice farmers, (2) to describe how these rituals are performed; and (3) to know why Banaue rice farmers still follow these rituals.

There were 70 full-blooded Banaue rice farmers who acted as respondents. A personal interview and a survey questionnaire were used to get the empirical data and other relevant information about the tribal rituals. Statistical tools used were percentage, ranking, mean and standard deviation.

Results showed that 38% were tribal rice leaders, 19% were barangay officials and 13 per cent were elementary teachers who were rice farmers by avocation.

Majority of the rice farmers are relatively old, married and have low educational attainment. They have an average of 6 to 10 children whose ages ranged from 13 to 15. Most of the spouses are housekeepers who also take part in the farming activities. Most of their children are engaged in rice farming. The educated farmers are not interested in following the rituals by the next generation on ground that it is just a waste of time and effort. Others claimed that rituals are very laborious.

Several respondents indicated that to observe rituals means good health, prestige and honor, prevention against the attack of rodents, insect pests, and bountiful harvest. Rituals are usually celebrated during harvest and storage which are mainly performed in the afternoon by the leaders, the pagan priest, rich families, and the orier lasting for half a day. Most of the involved farmers are landowners and few are tenants. Rich families perform the rituals because they believe that the evil spirits are interested in people with large tract of rice lands since they harvest more.

Fifty per cent claimed that they preferably use chickens for offering. Those who can afford butcher pigs. Killing of the animals is through the neck because it emphasizes respect to the idols rather than killing the animals slowly with a stick so that the bile sac will not be destroyed. The bile reveals if the ritual is going to be successful or not.

People perform rituals for the following purposes:  
 a) to appease the spirits; b) for prestige and honor;  
 c) to please old folks; d) to follow customs; e) to seek the blessings of the gods for their livelihood; f) and to be liked by the people in the community.

Farm activities are based upon these traditional rituals. Most families believe that by observing rituals they will always have bountiful harvest every cropping season.

OSORIO, SEVERO F. JR. May 1979. The Effect of Intercropping Corn in Cabbage on the Population of Diamondback Moth (*Plutella Xylustella*), Mountain State Agricultural College, La Trinidad, Benguet. Adviser: Mr. E. Cardona, Jr.

The effect of intercropping corn in the population of diamondback moth at various densities and times of planting was studied. The study was conducted at the Mountain State Agricultural College from April to June 1978.

The study was evaluated in terms of larval count, the degree of damage and weight of marketable heads. Low population of diamondback moth, degree of damage and significantly but higher yield were observed on the

intercropped corn planted two weeks ahead than the main crop cabbage which was followed by the intercropped corn planted simultaneously with the main crop cabbage.

Higher yield of cabbage was obtained from plots intercropped with corn planted two weeks earlier with a dense population than the main crop cabbage; this might be due to less infestation of diamondback moth larvae. Less infestation to the cabbage plant could be attributed to two factors; the probable interference of corn over diamondback moth specially on their mobility and the probable higher population of natural enemies of diamondback moth.

PADILLA, ELVIRA B. July 1979. Study of the Different Levels of Molasses for Fattening Broilers under MSAC Conditions. Mountain State Agricultural College, La Trinidad, Benguet, from January to March 1979.

A total of 160 chicks were used in this study. The experimental design used was the Completely Randomized Design (CRD). There were four treatments, namely:  $T_0$  - control (no molasses),  $T_1$  - 2% molasses,  $T_2$  - 4% molasses, and  $T_3$  - 6% molasses. Each treatment was replicated four times. The different percentage of molasses were added to the feeds of the test birds.

Results of the study showed that there were significant differences on the average final weight, weekly gain in weight, feed conversion efficiency and feed consumption of the test birds in the different treatments. However, the 2% molasses did not differ from the control. Only the birds given 4% and 6% molasses in their feed showed a significantly higher final weight, gain in weight, and feed conversion efficiency.

QUINTAN, BERRY N. May 1979. Contract Farming Practices of Vegetable Farmers in La Trinidad, Benguet, 1978. Mountain State Agricultural College, La Trinidad, Benguet.

Advisor: Mr. S. Cerrano

Specifically in agricultural production, liquid capital, coupled with the managerial ability of the farmer, plays an important role in determining success. The problem, however, is that most farmers in La Trinidad,

Benguet, lack the necessary liquid capital though they have sufficient fixed farm resources. Therefore, they resort to the contract growing scheme where supplier-financiers provide interest free loans; however, they are guaranteed with margins as stipulated in the contract.

Three barangays in La Trinidad-Binong, Alno, and Bahong were purposively selected where contract growing was found to be common. Thirty farmer-borrowers and 10 supplier-financiers were interviewed through a survey questionnaire. Farmer-borrowers were classified according to farm sizes (small, medium, and large) and the supplier-financiers were treated as a homogenous group.

Based on the data gathered, the youngest farmer-respondent was 22 years old and the oldest was 60 years old. Ninety-five per cent of the average capital investment was spent on land, two per cent on buildings, and three per cent on tools and equipment. For the supplier-financiers, the youngest was 22 and the oldest was 42. Fifty-one per cent of the capital investment was utilized on market stalls or warehouses, four per cent on market equipment and 45 per cent on transport facilities.

Farmer-borrowers indicated that the primary reasons for engaging in contract growing ranged from lack of available personal savings to finance production. The secondary reason was that capital was easily acquired due to the more simple loaning procedures of private individuals than those of government financial institutions. The supplier-financiers, on the other hand, indicated that the primary reason for engaging in the scheme was the continuous supply of merchandise. The second and third priority reasons were predetermined discounted prices making it easy to determine and preset margins and also the loan to be collected.

With regard to the form of financing, both farmer-respondents and supplier-financiers agreed that capital was being furnished in the form of physical inputs or both in kind or in cash depending upon the need of the borrowing party. Seventy per cent of the supplier-financiers, however, indicated that no legal documents were made on the contract for security purposes. Contracts were usually made verbally on a trust basis. On loan repayment, supplier-financiers withhold sales until all the farmer's products were marketed and net sales were given back depending upon the farmer's needs and convenience,

On average farm productivity per 1,000 square meters, small farms yielded 1,429 kilograms; medium farms yielded 1,025 kilograms; and large farms yielded 502 kilograms.

The resulting total returns was ₦1,076 per 1,000 square meters on the average for all the farms for two droppings. For small farms, the average was ₦2,345; for medium and large farms, ₦1,225 and ₦776; respectively. Returns above total costs for small farms was ₦928 per 1,000 square meters; for large farms, ₦180; and for medium farms, ₦163.

For the supplier-financiers, the average total costs per establishment was ₦410,451 for a duration of eight months (equivalent to two droppings), 99 per cent of which was cash while the remaining one per cent was depreciation costs. The sales for the duration of eight months was estimated at an average of ₦475,200 per supplier-financier. The average net income for eight months was ₦64,749.

Based on the findings, vegetable farms in the study area found a relatively easy and convenient solution to the crucial problem on liquid capital by engaging in the contract growing with willing supplier-financiers. Liquid capital was easily made available with practically no red tapes. Branches of contract were not common this was primarily responsible for the schemes' convenience. On the marketing aspect, the smooth and continuous flow of vegetables from the production phase to immediate and local market channels was assured with relative efficiency attributed to the integrating and assembling functions of the contract scheme. The resulting efficiency, however, was not reflected in the resulting consumer prices of vegetables because supplier-financiers also channelled their merchandise to bigger wholesalers and assemblers who usually supplied lowland markets.

A cost-effective system of a combined private and government sector effort in providing the farmers the necessary liquid capital and in providing technical supervision on production-which was expected to result in a three-party system of farmer-borrowers, the supplier-financiers and the government is envisioned in this study.



RABINO, LILIA R. October 1979. Response of Some Potato Varieties to Root-Knot Nematode Infection. Mountain State Agricultural College, La Trinidad, Benguet. Adviser: Prof. L. M. Villanueva

Responses of some potato varieties to root-knot nematode infection revealed that Franzi was resistant. Cordia and Cosima showed intermediate reaction while Berolina and Nordstern were moderately susceptible. A high degree of susceptibility was observed on Ilona and Conchita varieties.

The highest nematode recovery was obtained on the susceptible variety, Conchita. As regards to varieties showing intermediate reaction, few female nematodes were recovered in the roots. Variety Franzi had the lowest nematode root counts.

Berolina and Cosima gave the highest yield, followed by Ilona, Nordstern, Cordia and Franzi. The lowest yield was observed in the most susceptible variety, Conchita.

TABANGIN N.T., TABUAC, A.T. and G.B. TIBUNSIY. October 1979. Seasonal abundance of Thrips on Snap Beans with Notes on their Insecticide Control. Mountain State Agricultural College, La Trinidad, Benguet. Adviser: Mr. E. Cardona, Jr.

The population of thrips during the planting months from November 1978 to May 1979 and insecticides effective for the control of thrips were studied. The study was conducted at the College Experimental Station, MS.C, La Trinidad, Benguet.

A weekly sampling of thrips was done on snap bean leaves with the aid of magnifying lens. The insecticides were tested by determining the number of thrips before and after insecticidal application.

The heaviest infestation was pronounced during the vegetative and flower initiation stages. Consequently, the peak of thrips population was in February and January. Thrips population dropped considerably from April to May.

Since the peak of thrips population was the planting months of January and February, a rigid control of thrips during these months is necessary. In insecticide control

aspect, Zoolone 35 E.C. at the rate of 500 g, 600 g and 700 g active ingredient is recommended.

OBILLO, PATERNO M. October 1979. Evaluation of Different Fungicide-Combinations Against Phytophthora Infestans During Dry Season Planting. Mountain State Agricultural College, La Trinidad, Benguet.  
adviser: Prof. E. B. Akiew

Seven fungicide-combinations and rates used against Phytophthora infestans were evaluated at weekly intervals during dry season planting at the Mountain State Agricultural College experimental farm, La Trinidad, Benguet, from November 1979 to January 1979.

The fungicide-combination and rates used were: Daconil 75 WP (0.25 kg ai/ha), Daconil 75 WP (0.50 kg ai/ha), Daconil 75 WP (0.75 kg ai/ha), Daconil 75WP (1.0 kg ai/ha), Daconil 75 WP + Dithane (0.25 + 1.0 kg ai/ha), and Daconil 50 (0.665 kg ai/ha.).

The result showed that phytophthora infestans was more prevalent in December than either November or January. The symptoms of the disease were observed more pronounced at low temperature with high relative humidity and regular rainfall. All fungicidal treatments showed more significant effect than the control. The plants sprayed with Daconil 50WP (0.665 kg ai/ha.) gave the least foliage infection indexes. The untreated plants had no 100% foliage infection due to the effect of environmental condition on the growth and development of the disease. Daconil + Dithane M 45 gave the highest mean yield of tubers.

TOMBALAN, MARG VITA L. October 1979. Preliminary Study on the Nematodes associated with White Potato and Baguio Beans. Mountain State Agricultural College, La Trinidad, Benguet.  
adviser: Mrs. M. P. Cadaliga

Nematodes associated with white potato and Baguio beans were collected from the three barriers of La Trinidad, Benguet, and were identified. The symptoms of both crops and the crops planted prior to the crops on study were recorded.

The nematode genera associated with white potato



were Helicotylenchus, Meloidogyne and Scutellonema. Similarly, Helicotylenchus and Meloidogyne aside from Rotylenchus and Xiphinema were collected from Baguio beans. Meloidogyne belongs to the Family Heterodera while the rest are under the Family Tylenchoidea. All are under one Super Family Tylenchoidea of the Order Tylenchida and Class Secernentea.

Nematodes were found in crops with curly leaves and wilting, yellowing and stunted plants. The previous crops were possibly the former hosts of the nematodes collected. The previous crops before white potato were cabbage beans, potatoes and lettuce. Sweet peas, beans and cabbage were planted before Baguio Beans.

Further study on the biology, alternative hosts, population dynamics and control measures is recommended.

WILSON, FELICITAS, L. March 1980. Identifying Nutrient Deficiencies in Sweet Peas. Mountain State Agricultural College, La Trinidad, Benguet.  
Adviser: Prof. C. J. Oliveros

This study was conducted to: 1) establish the specific deficiency symptoms of specific essential elements for the production of sweet peas, and (2) get rid of the tedious laboratory analysis in determining nutrient deficiency, and (3) cure immediately the nutrient deficiency in sweet peas without waiting for the result of tissue soil analysis. The experiment was collected from January 11 to April 1, 1979 at the Mountain State Agricultural College, La Trinidad, Benguet.

The most critical abnormalities were noticed in phosphorus-deficient plants while slight abnormal appearance was observed in potassium-deficient plants. During the early stages of growth, the plants not supplied with chlorine had the most pronounced abnormal appearance resulting from the deficiency of chlorine. However, as growth continued, boron-deficient plants showed more abnormalities than chlorine-deficient plants. The NPK deficient plants died during the early stages of growth.

The results of the study revealed that plants deficient in phosphorus registered the lowest mean yield of pods, height of plants, average number of seeds per pod and the persistence of pod production. All plants deficient with nitrogen had a high mean yield of pod, height of plants, average number of seeds per pod and the persistence of pod production.

The deficiency symptoms of all the essential elements, either singly or the absence of two or more elements, were somewhat similar with each other. Chlorosis was the most common abnormality symptom; however, it could be identified through their degree of chlorotic appearance, area of affected leaves, the number of leaves affected, malformation of some plant parts and their growth.