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The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

EAP POLICIES THAT MAY NEED FURTHER CONSIDERATION

1. Endowment. The present endowment of the School is not enough to protect its independence which is so vital to its effectiveness in meeting the educational needs of the area. An endowment of \$14,000,000 might provide the margin of safety needed for an enrollment of 500 students. Even this amount of endowment will prove inadequate if inflation gets out of control again.

Without an increase in the endowment it will continue to be necessary to obtain funds for operating expenses by: (a) soliciting governments, corporations and individuals, and (b) increasing matriculation fees. Unfortunately, strings are frequently attached to funds solicited from outside sources, and increased matriculation fees tend to prevent poor but deserving students from attending the School.

A well-organized effort is needed to at least double the endowment of the School. To give reasonable assurance for success, a professional fund raiser of proven competence and familiar with the sources of funds in both the United States and Latin America should be employed.

2. Increase of Enrollment: Increase of enrollment may be acceptable and even desirable - if quality of teaching and students is maintained or improved. The present enrollment of the School is 370 which compares with 244 in 1975. This increase of more than 50 percent in enrollment has been accompanied by large classes, the dividing of some classes into morning and afternoon sessions and morning and afternoon work modules. Recent graduates of the School have been employed to assist professors with heavy loads. Even so, some professors who have both morning and afternoon classes and work modules find it difficult to prepare for the classes and work modules for which they are responsible. This may well have led to a decline in the teaching performance of such professors. Those professors

who are overloaded should be identified so that additional assistance can be provided to enable them to maintain the quality of their teaching.

The attrition rate for entering students appears to be about 30 percent, that is, about 30 percent of the students who enter the School drop out during the next 3 years. Attrition data for years prior to the recent expansion program are not available to the writer at this time. However, even though the present attrition rate is no greater than before every effort should be made to minimize it - because of wasted time and resources both for the School and for the students who drop out. To minimize attrition a well organized program is needed to: (a) Advertise the merits of the School and thereby obtain a larger selection of well qualified applicants; (b) Provide a careful screening and selection of students admitted; (c) Monitor the academic progress of students and provide tutoring for those who are in trouble.

3. Faculty Recruitment and Promotion. A recruitment and promotion policy designed to create a well-balanced faculty, dedicated to undergraduate teaching and loyal to the purposes of the School is desirable for EAP. If such a policy is accepted, then the criteria for recruitment and promotion should center around undergraduate teaching excellence. Experience has led the writer to the conclusion that higher level degrees, such as the Ph.D., do not assure undergraduate teaching capability or interest. Granted, teaching capability and interest may be more difficult to identify than research capability as exhibited by a dissertation, thesis or research publication; but for a school that is undergraduate teaching oriented, such as EAP, every effort should be made to identify good teachers for the purposes of faculty recruitment and promotion. If the School can afford the cost, a few Ph.D.s with undergraduate teaching capability and interest should be recruited - to provide leadership in the undergraduate teaching, to help other members of the faculty without Ph.D.s improve their knowledge of their field through seminars and short courses, and to supervise

and carry out applied research that contributes to undergraduate teaching or for which EAP is fully compensated by the beneficiaries thereof. Although the presence of a large number of PH.D.s on the staff of an institution may seem to add to its prestige, the writer is inclined to believe that the performance of its graduates who have been exposed to good teaching provides a more enduring prestige.

4. Research. If undergraduate teaching is deemed to be the primary purpose of EAP, research should have a minor role as suggested under 3. above. All research undertaken should be carefully scrutinized to be sure (a) that it really contributes to the undergraduate teaching program, or (b) that it is badly needed by Latin America and that all costs including overhead will be fully paid for by the governments or other beneficiaries of such research. It may be necessary to set definite limitations on both kinds of research; otherwise, too many resources of EAP may be diverted from undergraduate teaching to research. There is also the problem of continuity, where funds are curtailed by governments or others who have been sponsoring the second kind of research. In this case a policy should be in place with respect to the continuation or curtailment of such research and the staff that is engaged therein.
5. Faculty Improvement. The morale and performance of Faculty members at EAP before the present administration might be improved if they were given an opportunity to get up to date in their field of specialization and in modern teaching methods and if their superior teaching were recognized by merit raises and promotions regardless of the degrees they hold. The process of updating might be handled with seminars and short courses as suggested in 3. The awarding of merit raises and promotions would require careful monitoring - perhaps more careful than has been done in the past. Of course the same updating and merit recognition procedures could be applied to all of the faculty - both old and new.

In the absence of such an effort the older faculty - perhaps justifiably - may feel that it is neglected and left out and that it is futile to try to do a good job..

J. R. Greenman/jm

A STUDY OF
ESCUELA AGRICOLA PANAMERICANA

September, 1980

By: J. R. Greenman

CONTENTS

	Page
Introduction.....	1
The Present Situation with Comparisons.....	3
Findings and Recommendations	
Summary.....	7
<u>Administrative Recommendations</u>	
1. Business Manager, Head for Horticulture & Housing.....	9
2. Separate Department of Horticulture.....	10
3. Disposition of Rapaco I.....	12
4. Better organized planning.....	14
5. Discontinuation of intentional planning of production for commercial markets.....	16
6. Improvement of basic records.....	17
7. Restriction on sale of underpriced foods.....	19
8. Excess Horses and Mules.....	20
9. Limitation of new arrangement for purchasing vehicles.....	22
10. Tractor Pool.....	24
11. Appoitment of Farm Production Manager.....	25
12. Conflict of Interest Policy.....	26
13. Job Descriptions for Administrators.....	27
<u>Academic Recommendations</u>	
1. Separate Department of Horticulture.....	28
2. Present Size of Faculty Acceptable.....	29
3. New Schedule for Library.....	30
4. Modification of Discipline System.....	31
5. Scholarships for graduates to pursue advance study.....	32
6. Support for system of rigorous grading and grade point requirements for graduation.....	33
7. Tutoring program in mathematics and chemistry for students weak in these subjects.....	34
8. Maintenance of high level of academic performance for students allowed to remain at EAP.....	36
9. Adjusting staffing pattern to primary objective of teaching.....	38

	Page
Alternatives for the Future of EAP	
<u>Limiting Factors</u>	
Management Team.....	39
Land.....	39
Students.....	40
Employment for Graduates.....	40
Operating Funds.....	40
Obligation to maximize EAP's contribution to Latin America.....	41
<u>Alternatives in the Near Future</u>	
Holding student body to its present level.....	42
Increasing Student Body to 500.....	42
Women in the Student Body.....	43
<u>Beyond 1985</u>	
Increase in Student Body to 750 or 1,000.....	45
A Four Year Degree Program.....	46
Research.....	47

A Study of the
ESCUELA AGRICOLA PANAMERICANA (EAP)
September, 1980

INTRODUCTION

The author of this report was one of a group that made a study of Escuela Agricola Panamericana in August, 1971. Statements made in the introduction of that report can well be updated and repeated here. The school continues to be almost ideally suited to the educational needs of Central and other Latin American countries. Nearly a self-contained unit - it provides the requirements for living and a rigorous education in agriculture for about 275 students from 15 Central and other Latin American countries. A program of basic and applied agricultural courses, a daily farm work program to teach the practical application of principles learned in the classroom, and a carefully supervised schedule of all daily activities are combined to give the students a genuine understanding of agriculture, a sense of accomplishment, self discipline, and the ability to show - not just tell - others how to carry out improved agricultural practices. Several graduates have acknowledged that EAP took them as undisciplined boys and "made men" out of them. This seems to be the experience of most of the students that have graduated from the school.

The accomplishments of EAP graduates are well-known, particularly in Central and other Latin American countries. Many graduates have achieved prominence in agriculture, business and in government. Five have been or are ministers of agriculture. A substantial number have pursued advanced study at other institutions in Latin America and the

United States. Their record at such institutions is very good. The writer is quite familiar with their recent performance in the College of Agriculture of the University of Florida. There they are looked upon as very good students who have received an excellent background at EAP.

In the review of the School as it is now operating reference will be made to those recommendations in the 1971 Study for which further implementation is indicated. Also, other recommendations will be added where it is believed that change is needed to improve the School as it is now operating. These recommendations will be discussed under the title "FINDINGS AND RECOMMENDATIONS".

In anticipating changes required to meet future needs of Central and Latin America two guidelines will be used in evaluating alternatives: (1) Maintaining the independence of EAP from outside control; and (2) Maintaining the high quality of the School's graduates. It is the belief of the writer that loss of independence probably will be accompanied by loss of quality. The future of the School will be discussed under the title "ALTERNATIVES FOR THE FUTURE OF EAP".

This report is based upon extensive interviews with Director Malo and a large number of the faculty and administrative staff and upon data that was generously provided by them. If these findings and recommendations prove to be useful in improving the current program at EAP and in adjusting the operations of the School to the future needs of Central and Latin America, much of the credit can be directed to Director Malo and his staff.

THE PRESENT SITUATION
WITH COMPARISONS

A review of 1980 data and comparisons with 1970 and earlier years gives an overview of progress that has been made and can suggest possibilities of improvements in EAP. Data for 1980, 1975, 1970, 1961 and 1956 are given in the following table. Considerable data is omitted for 1975, 1961 and 1956 because it is not available or not comparable with data given for 1980 and 1970.

Highlights of the situation as indicated by the table are as follows. The number of students in 1980 of 274 was 46 percent greater than the number of students in 1970 of 188; while the number of professors in 1980 of 26 was only 4 percent greater than the 25 professors in 1970. Operating expenditures in 1980 of \$1,235,000 were 54 percent greater than 1970 operating expenditures of \$799,000; however, on a per student basis operating expenditures of \$4,507 per student in 1980 were only 6 percent more than operating expenses of \$4,250 per student in 1970. If allowance is made for a 113 percent increase in the consumer price index since 1970 as computed by the Banco Central de Honduras the deflated per student cost figure of \$2,115 in 1980 would actually be 50 percent less than the 1970 per student cost of \$4,250.

The number of buildings in 1980 of 187 was only 1 more than 186 buildings in 1970. In fact in order to meet faculty housing needs it may be necessary to build 2 more houses as soon as possible; and additional buildings will be needed if the School continues to grow. The number of motor vehicles in 1980 of 22 is substantially less than the 27 in 1970; but the number of tractors of 18 exceeds the 1970 number of 13 and probably can not be justified.

The farming operation at EAP continues to be substantial. The Agronomy Department produced 578 acres of crops in 1980 - 440 acres at Zamorano and 136 acres at Rapaco - as compared with 449 acres of crops in 1970 at Zamorano. The Horticulture Department had 45 acres in fruits, 10 acres in vegetables and 6 acres in ornamentals and propagation in 1980 as compared with 44 acres in fruits and 11 acres in vegetables in 1970. In 1980 the acreage of pasture was 779 as compared with 791 in 1970, with about 25 percent of the total used for dairy cattle and the rest for beef cattle. There were 578 head of beef cattle in 1980 as compared with 503 in 1970; but the number of dairy cattle of 137 in 1980 was less than the 153 in 1970. Swine numbers in 1980 are up to 247 as compared with 175 in 1970. Horses and mules numbering 60 in 1980 exceed 53 in 1970 and are far in excess of what is needed. Apparently 92 goats reported for 1980 are a new enterprise since there were none in 1970.

The number of laborers in 1980 of 157 is 38 less than the number of 195 in 1970 - suggesting that effective measures have been taken to utilize labor more efficiently.

The foregoing data, more detailed information in certain areas of EAP's operations, conversations with a large number of the staff and observations of the writer form the basis for recommendations given in the following section entitled FINDINGS AND RECOMMENDATIONS. These deal primarily with the immediate operation and management of the School. An attempt to anticipate the future is given in the section entitled ALTERNATIVES FOR THE FUTURE OF EAP. Where appropriate, detailed facts or conclusions leading to specific recommendations set forth in this section are given.

ITEM	UNIT	1956	1961	1970	1975	1980
Students	Number	158	155	188	244	274
Faculty	"	16	17	25	22	26
Administration (1)	"	12	22	22	29	25
Other Employees	"	210	144	195	113	157
Buildings	"	112	137	186	187	187
Cost of Buildings	Dollars	565,014	697,145	1,175,000	1,300,240	1,389,494
Tractors	Number	1	13	13	18	18
Motor Vehicles				27	21	22
Operating Expenditures	Dollars	400,000 (2)	563,000	799,000	947,290	1,235,000

Farm Acreages:

Agronomy: (3)

					<u>Rapaco</u>
Corn for grain	Acres		155		7
Corn for seed	"		22		100
Corn for silage	"		95		49
Sorghum	"		76		49
Cow-pea for seed	"				31
Sorghum for silage	"				15
					62

(1) Includes 3 also listed as faculty. (2) Estimated. Much of administration and accounting performed by United Fruit Co. at no cost to School. Without adequate information on such costs and because of changes in accounting methods, the estimate is only approximate and is subject to substantial error. (3) In 1980 the Agronomy Department is utilizing 378 acres of cropland at Zamorano. However, due to double cropping, the total acreage of crops is 440. In 1970 at Zamorano the Agronomy Department produced 449 acres of crops on 367 acres of cropland.

ITEM	UNIT	1956	1961	1970	1975	1980	<u>Rapaco</u> (6)
Beans	Acres			57		12	13
Cotton	"			3		0	27
Rice	"			23		15	45
Other	"			18		9	15
<u>Horticulture:</u>							
Vegetables	"			11		10	
Fruits	"			44		45	
Ornamentals & Propagation	"					6	
<u>Animal Industry:</u>							
Grass for beef production	"			606		584	
Grass for dairy cattle	"			185		195	
Hay production (4)				106		62	
Livestock numbers:(5)							
Swine	Number		86	175	192	247	
Beef cattle	"		335	503	783	578	
Dairy cattle	"		172	153	155	137	
Oxen	"		27	21	6	4	
Horses and Mules	"		49	53	39	60	
Goats	"					92	

(4) Hay produced on grass land also used for pasture. (5) Livestock numbers for June of year indicated.

(6) Other crops at Rapaco include 9 acres of tobacco, 5 acres of watermelons and 1 acre of cantaloupes. Total acreage of crops at Rapaco was 138.

FINDINGS AND RECOMMENDATIONS

Summary

Substantial progress has been made at EAP since 1970. An increase in the number of students from 188 to 274 while the number of faculty members has remained nearly constant and the operating cost per student in 1980 in terms of constant dollars is 50 percent less than it was in 1970 indicates effective efforts to reduce costs. In spite of the progress that has been made, of course, problems remain - in part, perhaps, because of a lack of continuity of Directors and Deans and the absence of a Business Manager.

First priority should be given to the employment of a Business Manager in order to complete the management team consisting of the Director, Dean, Comptroller and Business Manager. A Horticulturist should be employed to head a Department of Horticulture and revitalize the work in that area. A solution should be found for Rapaco I. in order to diminish the financial and manpower drain of that unit on EAP. The drive for production beyond that needed for teaching, food for the Mess Hall and for the faculty and administrative staff should be controlled. A meaningful set of records should be established to provide guidance for the production program. No more subsidization through sale of EAP produced foods at below market prices should be permitted without approval of the Board of Trustees. A system for more efficient use of motor vehicles, tractors and other major equipment should be established. Bureaucratic maneuvering that accompanies empire building of the various units of EAP should be brought under control. Efforts should be continued to maintain a high level of academic performance on the part of EAP students; and to assist those in or likely to be in academic difficulty a tutoring program should be established.

The staffing pattern of the faculty should be examined to be sure that it is designed for the primary objective of the School. Details concerning these and other recommendations are given under the sub-headings designated as Administrative Recommendations and Academic Recommendations.

The recommendations are not necessarily given in the order of their priority. Both the timing and in some cases the extent of their implementation should depend upon circumstances and the judgement of those who are thoroughly familiar with EAP and with local conditions. Although the direction of change indicated may be correct, in some instances it may not be desirable to go as far or as fast as suggested, and in others it may be desirable to go further and proceed faster than indicated.

Administrative Recommendations

1. Efforts to complete the administrative team at EAP should be continued. As indicated in Administrative Recommendation 1 of the 1971 Study, the Director cannot handle the broad problems as well as the details of managing the Academic and Business sides of the School. Moreover, in making important decisions and establishing policies he needs to counsel with people who are knowledgeable and interested in the broader aspects of the School. A Dean who joined the staff recently will be very helpful; but a business manager and a head for Horticulture are badly needed. There is, however, a shortage of housing. At least two new houses are needed as soon as they can be constructed to provide housing for the Business Manager and Head of Horticulture when recruited.

Recommendation:

A Business Manager and Head for the Horticulture Department should be added to the administrative staff as soon as suitable people can be found. In order to provide housing for them, however, two new houses should be constructed immediately.

In figure 1 is a suggested organization chart for EAP. This differs somewhat from a similar chart in the 1971 Study in that the Comptroller reports directly to the Director along with the Dean (Referred to as Associate Director - Academics in the 1971 Study) and the Business Manager (referred to as Associate Director-Business in the 1971 Study). Also, the duties of the Comptroller and Business Manager have been modified substantially. Ultimately, of course, the responsibilities of each will tend to depend upon the capabilities and interests of the persons who hold the positions. A separate Department of Horticulture is also provided and will be discussed under Administrative Recommendation 2.

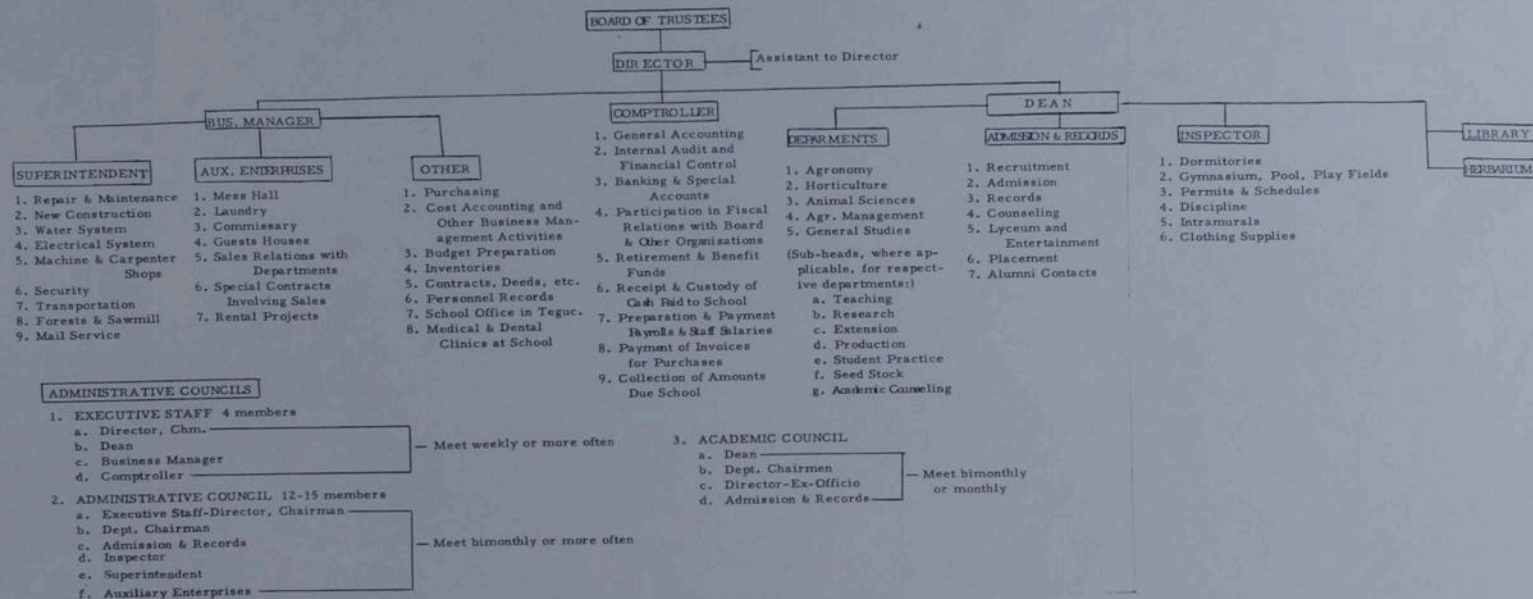
2. The suggested organization chart provides for the division of the Department of Plant Sciences into two separate departments - Agronomy and Horticulture. This is a reversal of Administrative Recommendation 2 in the 1971 Study. In the Department of Plant Sciences horticulture appears to have fallen almost into a state of neglect. The personnel in Horticulture are unhappy, the head of Plant Sciences admittedly does not know horticulture, and apparently is not averse to its being separated from his department. In order to revive horticulture so that it may receive appropriate emphasis in the program of EAP a Horticulture Department with a good strong head is needed.

Recommendation:

A separate Department of Horticulture should be reestablished; and a strong head for the department should be recruited as soon as feasible.

ORGANIZATION CHART FOR ESCUELA AGRICOLA PANAMERICANA

(One Alternative)



3. In the foreseeable future Rapaco I. probably will continue to be a financial and manpower drain on the resources of EAP. Located about 22 miles from the School, it consists of an area of about 5,000 acres with dimensions of 2 kilometers by 10 kilometers. Part of it lies across a river where it is relatively inaccessible. A few hundred acres of bottom land appear to be reasonably fertile but much of the area is rolling with a thin soil suitable only for pasture or forestry.

The distance from EAP is such that Rapaco I. is not suitable for field practice. The time required and cost of transportation are prohibitive. Nor can it be operated efficiently from EAP. Moving equipment, labor and livestock between EAP and Rapaco simply is not practical.

Operating Rapaco I. as an autonomous unit devoted to cattle on grass with a minimum of feed production might show a slight profit or at least reduce losses so that the property can be held to take advantage of possible rising land prices. In light of the unsettled conditions in Central America, however, the writer is not prepared to forecast a rise in land prices for Rapaco I. Moreover, to establish Rapaco I. as an autonomous unit would entail relatively large outlays of capital for many miles of fencing, roads, clearing, providing housing for the manager, labor and equipment, and for livestock and operating costs. Getting a good, honest manager would be the key to the success of such an operation; and holding him might be even more difficult.

Recommendation:

In order to stop the financial and manpower drain that is now taking place EAP should sell Rapaco I.; or establish it as an autonomous unit operating on an extensive basis with cattle and a minimum of feed crop production - recognizing, meanwhile, the risk involved in this course of action.

4. The first two sentences of Administrative Recommendation 5 in the 1971 Study read as follows:

Each year departments should prepare well-considered plans for the next year and should revise existing 5-year plans. Trimester reports of progress should be submitted to top level administration who in turn should check periodically on accomplishments and reasons for failure.

There continues to be a need for well-coordinated planning. In some instances the planning appears to be relatively haphazard and in others there appears to be a failure to coordinate planning between different units. For example, although a timely list of the monthly requirements of the Mess Hall for 1980 was submitted to the production departments, a shortage of EAP produced beef, vegetables and other products has required unusually large outside purchases by the Mess Hall so far this year. Examination of the purchases from outside EAP during the first eight months of 1980 suggests the magnitude of the problem.

<u>Commodity</u>	<u>Cost in Dollars</u>
Beef Cattle	\$ 14,560
Eggs	2,017
Other Meat	181
Fruits & Vegetables	4,156
Beans	2,126
Rice	<u>4,326</u>
Total - - -	\$ 27,366

In addition to the factor of cost and inconvenience in purchasing from outside, fruits, vegetables, meats and eggs produced in EAP and supplied to the Mess Hall should be of higher quality. In fact this is one of the justifications for meeting the needs of the Mess Hall with EAP produced commodities. If the list of food items required that was submitted was unreasonable or impractical the departments concerned should have conferred with the head of the Mess Hall to arrive at a production

schedule acceptable to all parties. Recommendation

Better organized planning is needed, particularly for the production activities of EAP. Production plans of the production departments should be coordinated with the food needs of the Mess Hall.

5. Production continues to occupy a great deal of the time of the faculty. This is necessarily so because of the Field Practice Program, but every effort should be made to hold down production for purely commercial purposes. Otherwise, faculty time needed for the academic program is diverted to production activities that do not pay off. Production should be coordinated with:

- a. The field practice requirements of teaching.
- b. Food needs of the Mess Hall.
- c. Food needs of the faculty and administrative staff.

Only after it is clear that the needs of these can be satisfied should consideration be given to production for any other purpose. With this qualification in mind production of improved varieties of seed is acceptable since it contributes to the economy of the countries where sold and since it can be sold at a premium price. Only production resulting from seasonal surplus or from years of unusually high yields should be sold on the usual commercial markets. The economic feasibility of intentional production for the usual commercial market is highly questionable; and in the planning process production of this kind should be vetoed. A cursory examination of the 1980 budget seems to support this point of view. The income from the sale of school products and services and assets internally produced is \$600,000. This compares with the total expenditures of \$510,000 for the department of Animal Industry, the Divisions of Agronomy and Horticulture and the Rapaco Ranch Project. Practically all of the expenditures of these units as shown in the budget can be attributed to production. Thus, there is a seeming profit of \$90,000. However, the expenditure total of \$510,000 makes no allowance for student labor or for faculty supervision. If allowance were made for faculty time devoted to production, it probably would wipe out a substantial part of the seeming profit of \$90,000. Moreover, it should be recognized that the total income of \$600,000 includes sales of seed at premium prices.

If that part of the income and cost of the production sold on the usual commercial markets could be isolated, the net return shown for commercial production probably would be a negative figure. As indicated under Administrative Recommendation 6. below, cost figures for individual commodities derived from the various departments are incomplete and of questionable accuracy. They should not be used as a guide in determining whether to produce commercially.

Recommendation:

Any intentional production for sale on the usual commercial markets should be discontinued.

6. A number of reports dealing with various aspects of their activities are submitted by the different units of EAP. Some of these are excellent and others suggest an absence of accurate, well-organized basic information behind the reports. Cost information concerning certain important commodities produced is prepared at a substantial cost; but it should not be used in guiding production decisions because it is incomplete and inaccurate. There do not seem to be accurate, well-organized, readily available records by fields showing for each year the crops produced, their acreage, the dates, nature and extent of production practices, yield and total production and disposition. In the absence of accurate yield and production information any cost data that are developed will not be accurate. A record should be kept of the hours of student labor and faculty supervision required in the production of each crop in each field and for each livestock enterprise. Such information could be used in determining accurate costs at least for the major production enterprises and it would indicate whether student labor and faculty supervision is being used effectively and efficiently.

Recommendation:

A member of the staff trained in accounting and farm management should be assigned the responsibility of working with the production departments in organizing and maintaining accurate basic records. He should be given authority to insist upon performance by those responsible for records in the respective departments. At the same time he should avoid insisting upon too much detail with respect to production enterprises that are of minor significance. Also, he should examine all basic records and reports now being made by the departments and recommend the elimination of those that are not of value in managing EAP activities.

7. In the 1971 Study Administrative Recommendation 6 read as follows:

"All perquisites in the form of free or subsidized food should be eliminated, and the compensation of those now receiving such perquisites should be adjusted accordingly. A central store equipped with the necessary storage and display equipment should be established to sell at prevailing market prices to the administrative staff and faculty and perhaps laborers of the foreman class food products of EAP and staple items imported from outside Zamorano."

In 1973 the issuance of free or subsidized food was terminated and the compensation of those who had been receiving such food was adjusted upward. At the same time, apparently, prices for food sold by EAP were brought in line with market prices in Tegucigalpa.

After the upward adjustment of prices in 1973, prices of many products, such as meats and other animal products, appear to have been held nearly constant while prices in Tegucigalpa rose substantially. By 1978 an arrangement existed under which faculty and administrative staff could buy fruits and vegetables at prices substantially below the prices at which these products were being sold at the roadside store. The roadside store prices were an approximation of the market prices for such products as indicated by Tegucigalpa prices. In January 1980 the privilege of purchasing such underpriced food was extended to EAP laborers in addition to the faculty and administrative staff. In effect this selling of underpriced products to EAP employees amounted to a concealed increase in their compensation.

In August 1, 1980 the prices of EAP foods were raised so as to be in line with Tegucigalpa prices; and the compensation of faculty, administrative staff and laborers was again raised - this time, by 15 percent of their salary or wage but not in excess of 150 Lempiras a month. This, of course, is a rerun of the previous episodes in 1971 and 1973. Perhaps it is necessary to permit this kind of undercover increase in compensation in this

environment; but if it is done it like all other salary increases, should be approved first by the Board of Trustees. Recommendation:

There should be no resumption of the sale of underpriced foods to EAP employees without prior approval of the Board of Trustees. Prices should be adjusted at least monthly to keep them in line with Tegucigalpa prices.

8. In the 1971 Study the last sentence of Administrative Recommendation 11 read as follows:

"All but 12 or 13 of the horses should be disposed of and a stallion should be kept for replacements only if needed for teaching purposes."

It was with considerable surprise, therefore, that the writer learned that the School now has 60 horses and mules. The feed required for these animals would support a sizeable herd of cattle; and it is difficult to visualize efficient use of even 12 or 13 of them at Zamorano. A few more might be needed if it is decided to operate a cattle enterprise at Rapaco I. Recommendation:

The number of horses and mules should be reduced at least to 25; and if it is decided not to have a cattle enterprise at Rapaco I. to 12.

9. The different kinds of vehicles owned by EAP and units to which they are assigned is given in the following table:

<u>DETAIL: VEHICLES</u>		<u>Unit to which Assigned & Description</u>		
		<u>Years of Service</u>	<u>No. of Vehicles</u>	<u>Total</u>
<u>Administration:</u>				6
Director	Station-Wagon Cherokee	3		
Director	Wagon LTD	3	2	
Superintendent:	Pick-up	4	1	
Students	Bus 40 pass.	6		
Students, Staff	Bus 12 pass.	6	3	
Students	Bus 15 pass.	1		
<u>Agonomy Dept.</u>				7
Head Prof.	Pick-up	1		
Assoc. Prof.	Pick-up	1		
Prof.	Pick-up	1		
Prof.	Pick-up	1		
Assoc. Prof.	Pick-up	4		
Assoc. Prof.	Pick-up	4		
Assoc. Prof.	Pick-up	2		
<u>Horticulture Dept.</u>				2
Assoc. Prof.	Pick-up	4		
Assoc. Prof.	Pick-up	4		
<u>Animal Husbandry Dept.</u>				1
Head Prof.	Pick-up	2		
<u>General Operations:</u>				5
Material Transp.	IH. Truck	5		
Material Transp.	Ford Truck	2		
Street & Grounds	Ford Dump Truck	2		
Tractor Shop	Pick-Up	4		
Electrical Shop	Pick-up	6		
<u>Chicago Museum</u>				1
Assoc. Prof.	Sta. Wagon	6		
			TOTAL	22

Both in numbers and in age this compares very favorably with a similar list

in the 1971 Study. At that time there were 27 vehicles of which 20 had been in service 6 years or more. The 1980 list shows 22 vehicles with 4 that have been in service as much as 6 years. Consideration should be given to replacing these.

An unusually heavy concentration of pickup trucks is assigned to Agronomy. This may be due in part to a new arrangement entered into with four members of that department. The School purchased the pickups in its name and assigned them to the faculty members. Each faculty member has the privilege of using the vehicle assigned to him for personal as well as School purposes. During the next four years he will make monthly payments that total one-half the cost of the pickup assigned to him. Meanwhile, the School will pay one-half the cost of minor repairs and maintenance and will allow the faculty member 25 gallons of gasoline a month to operate it on School business. Major repairs and replacements, such as tires and batteries, will be paid for by the faculty member. At the end of the four year period title to the vehicle will be transferred to the faculty member.

Advantages of the new arrangement are that the School will recover one-half of the cost of the vehicle; and, perhaps, repairs and maintenance will be less because the faculty member may treat it as his own. Disadvantages may be as follows: (1) Some faculty members may be reluctant to use their pickup on School business when they should. (2) Others may demand a vehicle when they have little use for it on School business. (3) When not in use for School business by the faculty member to whom it is assigned, a pickup probably will not be made available to another in need of it for School business. (4) There is a possibility that the School may be violating the spirit if not the letter of the arrangement with the government under which it imports the vehicles duty free. Recommendation:

The new arrangement for purchasing vehicles should be carefully examined over a period of time to be sure that it will be to the advantage of EAP. Meanwhile additional purchases of this kind should be severely limited and only permitted in those cases where the advantages clearly outweigh the disadvantages. If further investigation reveals that the practice is in fact in violation of the spirit of the arrangement with the government and may lead to revocation of EAP's privilege of importing duty free, the practice should be discontinued.

10. Administrative Recommendation 14 of the 1971 Study reads as follows:

Overage, worn out tractors not needed for teaching should be eliminated. Fewer tractors should be assigned to specific departments, and a tractor pool should be established for fuller utilization. The total number of tractors should be reduced to not more than 9. A program to replace tractors, as they become overage and worn out should be adopted.

At the time of this recommendation in 1971 the School had 13 tractors in use, of which 9 had been in service 8 years or more. In the following table is given an inventory of the School's tractors as of September, 1980 showing the units to which the tractors are assigned:

<u>Unit to which Assigned & Description</u>	<u>Years of Service</u>
<u>Agronomy Dept.</u>	
Tractor Unimog	8
Tractor J.D. 2030	4
Tractor J.D. 2030	4
Tractor CAT D4D	4
Tractor CAT	4
Tractor J.D. 2030	2
Tractor J.D. 3130	2
Tractor J.D. 3130	2
Tractor J.D. 4400 (Combine)	2
<u>Street & Grounds Dept.</u>	
Tractor J.D. 2020	9
Tractor J.D. 2030	5
<u>Animal Husbandry Dept.</u>	
Tractor J.D. 2030	4
Tractor J.D. 2030	2
<u>Horticulture Dept.</u>	
Tractor J.D. 2030	4
Tractor J.D. 2030	4
<u>Farm Shop</u>	
Tractor Ford 3000	9
Tractor Fordson 5000	5
Tractor J.D. 2030	5

This indicates that the tractory inventory has been updated - only 3 of the 18 tractors listed have been in service more than 5 years. However, a

total of 18 tractors are now in use as compared with 13 in 1971 and 9 suggested in the recommendation. Of the 18 tractors now in use 1 is a combine, 2 are caterpillar tractors and 1 is a combination tractor-vehicle known as a Unimog. Thus, 14 regular farm tractors are available for use. Even though the School is now operating the farm at Rapaco, it is doubtful that this number of tractors can be justified. For example, with 5 regular farm tractors the Agronomy Department produced 578 acres of crops in 1980, or 115 acres of crops per tractor. On a commercial farm a regular tractor should handle 300 to 500 acres of agronomic crops. It is doubtful that the need for timeliness or the requirements of field practice for students can justify this difference.

Recommendation

In accordance with a policy of continuously updating the tractor inventory consideration should be given to disposing of the two 9 year old and the one 8 year old tractor if they are worn out to the point that the cost of repairs are prohibitive. If they are disposed of they should not be replaced; and a tractor pool should be established for all but one or two tractors assigned to each unit of the School if needed.

11. Bureaucratic maneuvering that accompanies empire building of the various units of EAP tends to diminish the effectiveness of the School. Overzealous insistence by each unit in protecting "its" tractors and equipment, "its" pickup and other trucks, "its" machinery, "its" labor and even "its" land sometimes defeat the main objectives of the School. Reference was made in Administrative Recommendation 10 to the waste of tractors that exists. A similar situation exists with respect to pickup trucks and other vehicles and probably with respect to labor, machinery and other facilities. Two possible solutions to help mitigate this problem are: (1) A pool for tractors, trucks and other vehicles, and major equipment that can be used by more than one unit. Such a proposal was made in Administration Recommendations 13 and 14 of the 1971 Study. (2) A farm production manager with the wisdom, authority and will to allocate available resources and guide production in a way that will be of maximum efficiency and benefit to EAP. A combination of the two might be effective. In each instance the man assigned the responsibility must be able to take an unbiased position and be guided by what he thinks are the best interests of EAP. Recommendation

Consideration should be given to: the establishment of a pool for tractors, motor vehicles and other major equipment that can be used by more than one unit; the appointment of a farm production manager; or both.

12. Conflict of interest or the suspicion of a conflict of interest on the part of its employees can embarrass and damage the reputation of the School. As long as it does not constitute a conflict of interest or interfere in any way with their work for the School, outside work by employees for themselves or others can be condoned or even encouraged if it broadens their experience and makes them more effective employees. Because of its sensitive nature, however, all faculty and members of the higher levels of administration should provide to the School a written statement indicating the nature of any outside employment in which they are now engaged or contemplate being engaged in the near future. Such statements should provide enough information to permit an evaluation of whether the outside work conflicts with the employees' work at the School. If it is determined to be in conflict the employee concerned should be required to terminate such outside work. Even if it is found not to be in conflict it should be carefully monitored periodically to be sure that it continues not to be in conflict.

A case in point is three farms adjoining or near EAP land reported to be owned and operated by faculty members. In all probability no conflict of interest exists here, but each case should be examined carefully to be sure that such is the case and then monitored periodically thereafter. Recommendation

The Conflict of Interest Policy of the School should be reevaluated and revised if necessary to meet current needs; and then it should be impartially applied.

13. Administrative Recommendation 3 in the 1971 Study reads as follows:

Job descriptions carefully outlining his responsibilities and duties should be made available to each administrator. Greater responsibility should be assigned to department chairmen.

In the process of preparation are job descriptions for the Director, Dean, Business Manager and Comptroller; and one department head advises that he has tentatively prepared his own job description. Although it is to be anticipated that any job description will be modified later in light of experience and the nature of the capabilities and interests of the persons concerned, descriptions should be prepared as soon as feasible to provide guidelines for the various administrators pending changes that may be made subsequently. Recommendation

The process of preparing job descriptions for the administrators of EAP should be completed as soon as feasible. Such job descriptions would, of course, be subject to change on the basis of subsequent experience.

Academic Recommendations:

1. Academic Recommendation 1 of the 1971 Study providing for the combination of Agronomy and Horticulture into one Department of Plant Sciences has been adopted; but has not proven to be successful. Horticultural faculty members are dissatisfied, the head of the Department of Plant Sciences admits that he does not know horticulture, there is an apparent lack of real leadership and it is possible that the teaching program has suffered. Both for academic as well as administrative reasons, a Department of Horticulture should be reestablished.

Recommendation

A separate Department of Horticulture should be reestablished as soon as a suitable head can be employed.

2. Academic Recommendation 11 in the 1971 Study provided for the reduction of the faculty from 25 to 16 members. Apparently this reduction was partially implemented for a period of time and then recently the staff has been increased to 26. The staff cut recommended in the 1971 Study probably was too drastic; and the increase in the number of students from less than 200 in 1971 to about 275 in 1980 would justify additional faculty members. However, analysis of the work load at EAP in 1980 suggests that only about 23 faculty members can be fully employed in teaching, field practice and administration. To be fully employed the remaining 3 must be engaged in research, production or other activities. In light of the fact that EAP may continue to expand its activities and because of the rapid turnover in the staff this apparent surplus can be justified. However, if for some reason the decision is made to limit further expansion or even to reduce the student body, consideration should again be given to reducing the faculty. Recommendation

Although the faculty which numbers 26 is somewhat larger than can be justified by the existing work load of teaching, field practice and administration, it may be acceptable because of a high rate of turnover and the probable expansion of EAP activities in the future.

3. Academic Recommendation 17 in the 1971 Study appears to have been adopted to a considerable extent. Parts a. and b. of that recommendation read as follows:

- a. Faculty and students should be encouraged to increase their usage of the library.
- b. In order to facilitate such an increase, the library should be kept open on weekends at a time when schedules of the students permit more usage.

At this time library hours are as follows:

Monday through Friday	8:00 - 11:00 A.M. & 4:00 - 6:00 P.M.
Monday through Thursday	7:00 - 9:00 P.M.
Saturday	3:00 - 6:00 P.M.

This schedule does not encourage maximum use of the library. Students and faculty are occupied with field practice in the mornings so that access to the library at that time does not help them. They need more library time at nights and on Sunday. A library schedule that would more nearly fit the needs of students is as follows:

Monday through Friday	3:00 - 6:00 P.M. & 7:00 - 10:00 P.M.
Saturday	3:00 - 6:00 P.M.
Sunday	3:00 - 6:00 P.M. & 7:00 - 10:00 P.M.

Recommendation

The schedule of the library should be adjusted so that students have more library time at nights during the week and on Sunday.

4. The results of the discipline program at EAP are outstanding. Students learn the meaning of personal self-discipline and responsibility. Academic Recommendation 22 in the 1971 Study read as follows:

The evening study period should be increased one-half hour to 9:15 P.M. If experience demonstrates that most of the students are using this additional time effectively for study, consideration should be given to increasing the study period an additional one-half hour.

Apparently extending the evening study period was successful since the study period now ends at 10:00 P.M.

Another possible improvement in the discipline program might be to allow students who have "demerits" because of relatively minor "faults" to remove their "demerits" or "faults" by doing onerous or even distasteful tasks. In this way it might be possible to avoid discharging students for disciplinary reasons when they are not guilty of really serious infractions; and it could give a positive rather than a negative tone to the discipline program. Recommendation

A system of discipline should be devised and tried which permits students to remove "faults" or "demerits" resulting from minor infractions by doing onerous or distasteful tasks assigned to them. As a guide in devising such a system, the program of discipline followed at one or more military academies might be considered.

5. Academic Recommendation 26 in the 1971 Study read as follows:

A minimum of 10 scholarships should be established for assisting graduates of the School who wish to pursue studies for the bachelor's degree at recognized institutions in either Latin or North America.

At the time that recommendation was made only 2 such scholarships were available. Later, in 1976 a fund was made available by the U. S. Sugar Corporation to provide scholarships for 8 EAP graduates each year for a few years. Now, that fund has been exhausted and no scholarships are available for an increasing number of qualified EAP graduates who desire an opportunity to continue studying for the bachelor's degree after receiving their Agronomo degree from the School. Because the School has increased in size by more than 75 students since 1971 and in view of the possibility that it will continue to grow, the number of recommended scholarships should be increased from 10 to 15 with the possibility of increasing it further as the student body increases. In order to provide the scholarships that are needed potential donors such as governments, wealthy individuals and businesses should be approached both in the countries of origin of the students and in the United States.

Recommendation

A minimum of 15 scholarships should be established for assisting graduates of the School who wish to pursue studies for the bachelor's degree at recognized institutions in either Latin or North America.

6. Academic Recommendation 28 in the 1971 Study read as follows:

Consideration should be given to a grading system for the School that will permit students who are worthy of graduating to achieve an honor point average of at least 2.0.

The grade point distributions of EAP graduates from 1975 through 1979 are as follows:

Grade Point Average :	Number of Students				
	1975 :	1976 :	1977 :	1978 :	1979 :
3.6 - 4.0	2	2	4	4	1
3.1 - 3.5	5	14	10	19	9
2.6 - 3.0	23	24	43	30	30
2.1 - 2.5	30	21	42	28	26
2.0	2	2	1		4
1.9		1			
Total	62	63	101	81	70

During the 5 years from 1975 through 1979 only 1 out of 377 students graduated with less than a 2.0 grade point average and his average was 1.9. This compares very favorably with the period from 1966 through 1970 when out of 274 graduates 68 were allowed to graduate with a grade point average of less than 2.0. The minimum grade point average of students allowed to graduate in each of these years was: 1966 - 1.56; 1967 - 1.71; 1968 - 1.70; 1969 - 1.76; 1970 - 1.63. It seems quite apparent that since 1970 the School has adjusted its grading system so that students deemed worthy of graduation could attain a 2.0 grade point average; or that it has simply refused to graduate students with less than a 2.0 average; or both. The present Director is insisting on rigorous grading and adherence to the 2.0 grade point average rule; so that an Agronomo degree from the School will mean that its recipient has performed well. Recommendation

The Director of EAP should be supported in his insistence upon rigorous grading and strict adherence to the 2.0 rule for graduation.

7. Analysis of the distribution of grades received in mathematics and chemistry during the last three years by students in the classes of 1980, 1981 and 1982 suggests the need for a tutoring program to help students who are weak in these subjects to gain a better understanding. Such a program should take effect early in the career of a student at EAP since a good understanding of mathematics and chemistry are so fundamental to their understanding of and performance in other courses. The following table gives the distribution of 737 grades in mathematics and 469 grades in chemistry for the classes of 1980, 1981 and 1982:

Grade	Mathematics			Chemistry	
	Number	% of Total		Number	% of Total
A	92	12.5		50	10.7
B	130	17.6		129	27.5
C	259	35.1		148	31.5
D	128	17.4		89	19.0
E	128	17.4		53	11.3
	737	100.0		469	100.0

Recommendation

A tutoring program should be established in mathematics and chemistry, at least for the introductory courses, to help students who are weak in these subjects.

8. Thirty four students have been terminated in 1980 at EAP for academic reasons. Of these 18 belonged to the class of 1982, 15 to the class of 1981 and 1 to the class of 1980. The following table gives for each class the grade point average of those terminated for academic and other reasons:

Grade Point	:	Reason for Termination			
Average	:	Academic:	Discipline:	Voluntary:	Other:

Class of 1982

0. - 0.3	1		1	1
0.4 - 0.6	1	1		
0.7 - 0.9	3	1		
1.0 - 1.2	6			
1.3 - 1.5	5		1	
1.6 - 1.8	1		1	
1.9 - 2.1	1			
2.2 - 2.4				
2.5 - 2.7			1	
Total	18	2	4	1

Class of 1981

0.7 - 0.9	1			
1.0 - 1.2				
1.3 - 1.5	4			
1.6 - 1.8	10			
1.9 - 2.1			2	
Total	15		2	

Class of 1980

1.77	1			
2.93			1	
Total - All Classes	34	2	7	1

It is regrettable that students have to be terminated for any reason, for it represents a loss of time and money both to the students and to the School. Although terminations in 1980 seem quite high, a student by

student review of the reasons for such action indicate that it was appropriate. Perhaps permissive attitudes on the part of previous administrations have led students to think that they did not need to perform. More careful screening of applicants for admission will help. A move in this direction has already been made in that the rigor of the mathematics examination given for 1981 applicants has been increased. A tutoring program such as is proposed in Academic Recommendation '7 will help. Recommendation

Every effort should be made to maintain a high level of academic performance by students at EAP.

9. In terms of high level degrees the faculty of EAP is well trained. This is indicated in the following table showing the number of faculty members with different levels of degrees:

Highest Level Degree Obtained	Number of Faculty
Ph.D.	7
Master	9
Bachelor	1
Agronomo	6
Other	3
	26

All seven of the faculty members holding the Ph.D. degree and three of those holding the Master's degree have joined the staff in the last three years. This upgrading of the staff probably is desirable from the standpoint of the prestige of the School. However, if the primary purpose of EAP continues to be the teaching of undergraduate students, it may pose a problem. Frequently, Ph.D.'s are oriented toward research and do not really like teaching - particularly, undergraduate teaching. Also, in order to retain them on the staff it may be necessary to allow them to do a certain amount of research which may or may not contribute to the teaching program. Faculty with lower level degrees probably can be recruited and retained at a substantially lower cost. A fertile field for recruiting such faculty might be among recent graduates of U. S. agricultural colleges who have taken a B.S. in agricultural education and an M.S. degree in a specialized field of agriculture, or the reverse. If not already fluent in Spanish a prospective faculty member of this kind might be willing to undertake an intensive study of Spanish at one of the schools that give such training.

Part of the problem of the faculty of EAP is lack of continuity because of rapid turnover. This is suggested by the following table showing the number of faculty members that have been employed by the School for different periods of time:

<u>Period of Employment</u>	<u>Number</u>
Less than 1 year	6
1 year to 1 year & 11 mos.	3
2 years to 2 years & 11 mos.	2
3 years or more	<u>15</u>
	26

It may be worth noting that the M.S. degree is the highest degree held by faculty members who have been with the School 3 years or more.

Recommendation

The staffing pattern of the School should be adjusted to its primary objective. If that objective is the teaching of undergraduates, faculty should be recruited that is really interested in so doing. In some cases this might be a person holding a Ph.D. degree, but in many other cases it might be a person holding an M.S. degree - or less.

ALTERNATIVES FOR THE FUTURE OF EAP

Introduction

In guiding the future of the School, of course, any number of alternative policies or courses of action may be chosen. This statement undertakes to discuss the favorable and unfavorable aspects of those alternatives that appear reasonable within the limitations of time and resources available. An overriding consideration in the choice of any alternative should be: (1) Maintenance or improvement of the high quality of the graduates from the School. (2) Sustaining the independence of EAP - which probably is a prerequisite for maintaining its quality.

Limiting Factors

Management Team: A complete management team consisting of a Director, Dean, Business Manager and Comptroller is essential to the continuity of any program or policy that is undertaken. If made up of the right people such a team can carry on effectively for a period of time if one member drops out temporarily. Although essential for proper management of the School at its present size, such a team could manage equally well an institution that is substantially larger and that has a more diversified program.

Land: Farm and pasture land available in the holdings of the School at Zamorano probably can accommodate a student body of 500 - assuming that it continues to be a relatively self-sustaining unit providing much of the food for the student body, faculty and administration with present consumption patterns and production methods. If there is any possibility that in the future the School will need to expand to accommodate increasing numbers of students or to protect itself from urban encroachment, the time to acquire such land probably is now. Adjoining the south side of the

EAP holdings next to the Animal Science Department facilities is a tract of about 2,000 acres of which about one-third is suitable for growing crops, one-third is suitable for pasture and one-third is suitable for forestry. The tract also has a site for a dam that could supply all the water that the School might need in the foreseeable future. If this site were acquired, neither land nor water would be a limiting factor on a substantial growth in the School.

Students: Candidates for entrance in 1981 totaled 986. Of these 233 were preselected as being qualified to attend EAP, and 160 were finally accepted. On the basis of this experience it appears that with present methods of recruiting enough qualified students could be recruited to sustain a student body of 500. If an attempt is made to enlarge the School beyond that point, improved methods of recruiting would be needed, or the EAP academic program would need to be modified in order to attract more candidates.

Employment for Graduates: With the current supply of graduates this does not appear to be a problem. Each graduate is reported to receive two or more job offers. In all probability employment would not be a problem for graduates from a student body of 500. Perhaps only experience can give a clue as to the possibilities of employment for graduates from an even larger student body; but the outlook seems favorable even with a student body over 500.

Operating Funds: Usually it is possible to obtain the funds needed to make necessary capital improvements at the School; but obtaining the necessary operating funds frequently constitutes a problem. In the 1980 budget provision was made for \$1,235,000 in operating funds and it was anticipated that \$750,000 or 60 percent would come from the endowment and matriculation fees - which are under the control of EAP - and the rest from governments, corporations and individuals. The 60 percent

figure might well be termed the "Independence Factor" of the School. It can be used as a guide to help insure that EAP continues to maintain its independence from outside control. As long as it remains over 50 percent and operating money received from any single outside source does not exceed 10 or 15 percent of the total, the School can probably maintain its independence. With these as guidelines a program of expansion of the School might be undertaken. If the "Independence Factor" approaches 50 percent every effort should be made to increase it by increasing the endowment or matriculation fees, or both; or the proposed expansion should be curtailed.

Obligation to Maximize EAP's Contribution to Latin America: EAP is unique in that it is free of outside control. Because of this it has been able to maintain over a period of nearly 40 years a program of basic and applied courses, field practice, and discipline that has not been matched in Latin America. A number of attempts have been made to imitate but all have failed - in part, perhaps, because they lacked independence. Because it is so uniquely capable and because other Latin American institutions are unable to produce badly needed EAP-type graduates, it might be said that the School is failing to meet its responsibilities if it does not produce as many such graduates as are within its capabilities. For example, it might be easier and involve less risk for the School to remain at its present size; but if it is able within the limitations discussed above to enlarge its output of high quality graduates, it would better serve the needs of Latin America in so doing.

Alternatives in the Near Future

During the next 5 years, reasonable alternatives for the School would be to maintain the present program of basic and applied courses, field practice and discipline and (1) Hold the student body to about 275 students as at present; or (2) Gradually increase the student body to 500 students. Each alternative appears feasible within the scope of most of the limiting factors discussed above.

Holding the Student Body to its Present Level: This alternative probably involves the fewest problems. It follows the philosophy of staying with a good thing when you have it, and it easily falls within most of the limitations discussed above. Stagnation that might accompany this alternative could be avoided by periodically updating courses and curricula, by bringing in guest scholars to teach and hold seminars and by providing scholarships for members of the faculty to study elsewhere. It would involve a minimum of capital outlay for refurbishing and expanding existing facilities and the disruption that accompanies such activities. On the other hand it would fail to increase the number of EAP-type graduates so badly needed in Latin America.

Increasing the Student Body to 500: This alternative also appears to be within the scope of most of the limiting factors set forth above. It would make full use of the capabilities of EAP in providing graduates for Latin America. Only one of the limiting factors, operating funds, is likely to pose a problem.

Operating expenses in 1980 are budgeted at \$1,235,000. Assuming a constant price level and an increase in operating expenses in proportion to the increase in students, adjusted downward by 15 percent for increase in efficiency, the operating expenses for 500 students would be \$1,916,000. With matriculation fees at the current level of \$1,350 per student and income from the endowment at \$380,000, income from these two sources

would be \$1,055,000. Under these assumptions the "Independence Factor" would be 55 percent. With the matriculation fee at the 1981 level of \$1,650 per student the income from fees and the endowment would be \$1,205,000 and the "Independence Factor" would be 63 percent. The real problem is likely to arise with continued inflation. Assume a 50 percent increase in operating expenses to \$2,874,000 due to inflation. Assume, also, that endowment income is \$400,000 and that the 1981 level of \$1,650 per student is also increased by 50 percent to \$2,475. Then, the income from these two sources of \$1,637,500 is 57 percent of the estimated operating expenses. Under the assumptions used, the level of the "Independence Factor" appears to indicate reasonable safety although the amount of "outside" money that would have to be obtained would increase substantially if the student body were increased to 500. On the negative side it is possible that an increase in efficiency of 15 percent would not accompany an increase in the student body from 274 to 500; although an increase in efficiency of 50 percent did accompany an increase in students from 188 to 274. Also, increasing the matriculation fee might inhibit the recruitment of qualified students. On balance, however, it appears that increasing the student body to 500 is a reasonable alternative. Moreover, the momentum that accompanies growth is quite apparent at EAP. It might be a mistake to allow it to disappear.

Women in the Student Body: Arrangements are already under way to include 5 women in the 1981 student body on an experimental basis. Out of 70 Honduran women who applied, 5 have been selected that are excellent prospects. Whether 5 female students are enough to give coeducation at EAP a fair test is, of course, a question. If it had been feasible, a larger number might have given a better indication of how coeducation at EAP will actually work. *Say 10-20%, in grammarian's opinion*

Although very successful with an all male student body, the educational program at EAP may not be adapted to a coeducational student body. Problems of discipline, distraction from the educational purpose of the School and other difficulties may arise. Additional expenses may accompany special arrangements needed for females. On the other hand the presence of bright, well motivated women on the campus will create a more normal environment and can provide a leavening influence that encourages all students to do their best.

Beyond 1985

Reasonable alternatives in the years beyond 1985 will depend upon circumstances including changes in the limiting factors that have been discussed. For example, if the management team proves to be as effective as hoped, it will be able to handle a school substantially larger than 500 students and an academic program that is much more diversified. Abatement of inflation will reduce the importance of operating capital in limiting the size and diversity of the School's operations.

Increase in Student Body to 750 or 1,000: While maintaining the same basic program that it now has, it is not inconceivable that the student body of EAP can grow to 750 or 1,000 - perhaps, sooner than might be anticipated. The need for high quality graduates from a student body of this size seems apparent. Whether they can obtain employment at compensation in line with their training and ability will only be revealed by time and experience. Also experience with improved recruiting techniques will reveal whether qualified students can be obtained for student bodies of these sizes. A good guess would be in the affirmative in both cases. Operating funds will always be a problem but if and when inflation abates, obtaining them without violating the "Independence Factor" should be easier. Unless suitable additional land and water is obtained, however, the School seems destined to be limited to 500 students. In the discussion of the limiting factor "Land" it was pointed out that a tract of suitable land with water, adjoining the south side of the Zamorano holdings of EAP, is available and that now may be the best time to acquire it.

There is, of course, the possibility that the student body could be increased to 750 or 1,000 without acquiring additional land by electing to purchase a larger proportion of the food consumed by the students, faculty and administrative staff. Whether this can be done effectively while maintaining the same high quality of EAP produced food would need to be determined.

A Four Year Degree Program: Many of the best qualified student prospects decide against attending EAP because it does not offer a 4-year degree. They often elect to attend inferior schools that do offer a 4-year degree because of the prestige attached thereto, and because of the higher compensation, initially at least, that they can receive - particularly in government jobs. By not giving a 4-year degree, such as a Bachelor of Science, the School in effect is denied the opportunity of giving EAP type training to some of the potentially most capable students in Latin America; and these students in turn do not receive the benefits of such training. On the other hand the School with its limited resources is able to give three years of such training to as many as 11 or 12 percent more students.

If in the course of its expansion program to meet the needs of Latin America the School finds it is approaching a ceiling in the demand for its Agronomo graduates or in the supply of qualified student prospects, it can probably solve these two problems by adding a 4-year degree program to the Agronomo program. By so doing it probably would increase the demand for its graduates, and more qualified students would want to attend EAP. Of course, without the development of ceilings on the demand for Agronomo graduates or the supply of qualified students, it may be decided to change to a 4-year program on the basis that it is better to graduate 90 students, some of whom have both the Agronomo and Bachelor of Science degrees, than 100 students with only an Agronomo degree.

The 4-year degree program would not be available to all graduates - only to those who make a 2.5 grade point average or better. All graduates would be given the Agronomo degree at ^{the} end of 3 years; and those with at least a 2.5 grade point average would be eligible to pursue a Bachelor of Science degree during the fourth year in a specialized field such as Agronomy, Animal Science, Horticulture, Agricultural Economics or Integrated Pest Control Management (IPM).

In order to finance any extra costs connected with the program, Bachelor of Science degree candidates could be required to pay double the regular matriculation fee for their fourth year of study. Out of 377 graduates from EAP during the five years, 1975 through 1979, 220 or 58 percent had a grade point average of 2.5 or more. Thus, out of a graduating class of 70, approximately 40 would be eligible for the 4-year program; and of this number perhaps 30 would elect to take it.

Research: A minimum of research is now being done at the School. One project dealing with slugs, a pest that attacks beans, is outstanding for teaching purposes and offers possibilities of excellent results. Another long-time project dealing with the cross breeding of cattle seems to offer little for the teaching program and, in general, for the benefit of EAP. The Agronomy department is reported to be in the process of developing a research program.

Because of its limited resources and its primary purpose of teaching undergraduate students, it is doubtful that research should be encouraged at EAP unless it contributes to the teaching program - or, unless the beneficiaries of such research are willing to pay the full cost, including overhead. Of course, there will be instances where in order to retain a good teacher it may be necessary to permit him to engage in some research that does not meet these requirements; but such research should be kept to a minimum.

In spite of the qualifications and questions indicated above it is probably true that the staff of EAP is uniquely qualified to do applied and adaptive research so badly needed in this part of Latin America. If the beneficiaries of the research are willing to pay the full cost and if it is carefully organized and supervised to see that it is done well and does not interfere with the teaching program, it should be condoned and perhaps even encouraged.

A STUDY OF
ESCUELA AGRICOLA PANAMERICANA

August, 1971

EAP Study Group:

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CONTENTS

	Page
Introduction.....	1
The Present Situation with Comparisons.....	5
Findings and Recommendations	
Summary.....	9
<u>Administrative Recommendations</u>	
1. Associate Directors.....	10
2. Departmental Reorganization.....	11
3. Job descriptions.....	13
4. Communications.....	13
5. Planning.....	14
6. Perquisites.....	14
7. Pilferage.....	17
8. Accounting and records.....	17
9. Development Program.....	19
10. Lodging and food for visitors.....	21
11. Oxen and horses.....	22
12. Buildings.....	23
13. Motor vehicles.....	24
14. Tractors.....	27
15. Labor force reduction.....	28
16. Medical and dental program.....	29
<u>Academic Recommendations</u>	
Introduction.....	29
Departments and Faculty	
1. Department of Plant Sciences.....	31
2. Department of Agricultural Management.....	32
3. Defining department purpose and objectives.....	32
4. Inclusion of department heads in making of decisions.....	33
5. Meetings of department faculties and department heads with Director.....	33
6. Roles of teaching, research and extension.....	34
7. Equating faculty workloads.....	35
8. Guidelines for promotion and salary increases.....	35
9. Student and alumni evaluations of teaching.....	35
10. Employment of visiting professor.....	36
11. Reduction of faculty.....	36
12. Increasing educational allowance for faculty.....	37
13. Improving social climate for faculty.....	38
14. Faculty salary increases.....	38
15. Alleviating isolation of EAP.....	38
16. Office space and clerical help for faculty.....	39

The Library	
17. Recommendations a through e.....	39
The Curriculum	
18. Including additional subject matter.....	41
19. Establishment of curriculum committee.....	42
20. Reducing field practice.....	42
21. Increasing flexibility.....	43
The Student	
22. Increasing evening study period.....	43
23. Student counseling.....	44
24. Alternates for students selected to attend EAP.....	45
25. Tuition for poor students.....	46
26. Scholarships for EAP graduates studying for B.S. degrees.....	47
27. Student transcripts.....	47
28. Grading program.....	48
Budget for 1970-1976.....	50 - 56
Appendix	

A Study of the
ESCUELA AGRICOLA PANAMERICANA (EAP)

August, 1971

INTRODUCTION

Anyone interested in an educational institution that is almost ideally suited to the needs of developing countries should visit the Escuela Agricola Panamericana. Nearly a self contained unit - it provides the requirements for living and a rigorous education in agriculture for about 200 students from 15 Central and other Latin American countries. A program of basic and applied agricultural courses, a daily farm work program to teach the practical application of principles learned in the classroom, and a carefully supervised schedule of all daily activities are combined to give the students a genuine understanding of agriculture, a sense of accomplishment, self discipline, and the ability to show - not just tell - others how to carry out improved agricultural practices. One outstanding graduate acknowledged that EAP took him as an undisciplined boy and "made a man" out of him. This appears to be the experience of many of the students that have graduated from the School.

The quality of an educational institution can be judged by the accomplishments of its graduates. Using this as a criterion, the Escuela Agricola Panamericana is outstanding among Latin American institutions and many North American colleges of agriculture might do well to emulate some of its policies and programs. Graduates of

EAP are agricultural leaders in many Latin American countries. Since the first class received their 3-year Agronomo degrees in 1946, 1,227 students have graduated from the School. Information available on 551 graduates indicates that 94 percent are engaged in agricultural or related activities and 6 percent are doing advanced study at other institutions. Of the 94 percent engaged in agricultural or related activities, 37 percent are employed by governmental institutions, 6 percent are operating their own businesses, 41 percent are working for private businesses, 8 percent are in educational organizations. It is interesting to note that 5 graduates have been or are director generals of agriculture. The record of EAP graduates at the University of Florida is impressive. The grade point average of 101 students that received the B.S. degree in the College of Agriculture at Florida University was slightly higher than the grade point average made by such students at EAP.

Another way to judge an educational institution is in terms of the demand for its graduates and the number of qualified students who apply for admission. Students from EAP usually receive two or more job offers upon graduation; and frequently they are preferred by employers over "Ingeniero" graduates from other Latin American institutions. They are known as doers who are able to apply the principles they have learned. Approximately 12 students, of which 3 are qualified, apply for each position available in the Freshman class at the School.

From the foregoing it can be seen that the Group making this Study is enthusiastic about the accomplishments and potential of EAP. They believe

that every effort should be made to insure that it can continue its unique educational program. The payoff in terms of impact on the economy and level of living in Latin America from money spent on a well oriented, highly effective institution, such as EAP, can be very high.

This study was undertaken with a view toward finding ways of helping an institution that already has a very good reputation become even better. Regardless of how good an institution is or has been, ways can always be found for improvement. We believe that this is true at the Escuela Agricola Panamericana and have indicated in the following sections of this report our findings and recommendations.

Two members of the Study Group, Greenman and Ramirez, arrived in Zamorano on July 20 and remained until August 28; and the other three members, Colvard, Glazener, and Robles, arrived on July 29 or 30 and remained until August 11 or 12. The affiliations and addresses of each member of the Group are given in the appendix. In order to facilitate an in depth study, two sub-groups were formed; one to study the administrative side and the other the academic side of the institution. Major findings and recommendations of each sub-group were then reviewed and agreed upon by the whole Study Group. Subsequently, two drafts of the report were circulated to all members of the Study Group for suggestions that are included in this final report.

Director Armour and the staff at EAP were very helpful in providing the information and assistance needed in making this study. Their cooperation provided the Study Group with much of the information required as a basis for its findings and recommendations. Because

of their cooperation the Study Group was able to develop in a relatively short time the information needed as a basis for its findings and recommendations. If these findings and recommendations prove to be useful in improving the program at EAP, much of the credit can be attributed to Director Armour and the staff.

THE PRESENT SITUATIONWITH COMPARISONS

A review of 1970 data and comparisons with earlier years gives perspective in attempting to find ways to improve EAP. In the following table data for 1970, 1961 and 1956 are given. Considerable data for the earlier years are not included in the table either because they were not available at the time of the study or because they would not be comparable to 1970 data.

The picture presented by this table is as follows. The number of students in 1970 of 188 was about 20 percent greater than the number of students in 1961 and 1956; and the number of professors of 25 was about 50 percent greater. The number of buildings in 1970 of 186 was about 35 percent more than the number in 1961 and 65 percent more than the number in 1956. An examination of the number of tractors, motor vehicles, horses and oxen suggests a surplus in relation to the needs of EAP. The operating budget in 1970 of \$800,000 is 42 percent greater than the 1961 budget and about double the 1956 budget. The substantial size of the farming operation conducted by EAP is indicated by the acres of crops and numbers of livestock - 449 acres of agronomic crops, 55 acres of fruits and vegetables, 791 acres of pasture, 175 head of swine, 503 head of beef cattle and 153 head of dairy cattle. In fact, the size of the farming operation suggests one of the School's major problems - excessive emphasis on production. As suggested later, it may be cheaper to buy

rather than produce certain products such as corn. Final determinations in this regard will have to await information obtained from an adequate system of records.

The number of laborers in 1970 of 195 was about as large as the number in 1956 of 210. This is despite the fact that EAP has become relatively highly mechanized since 1956. Also, beginning in about 1961, an increasing amount of work formerly done by the labor force of EAP, such as laundry for the students and construction of buildings, has been contracted out. The great increase in number of buildings suggests an increase in maintenance costs and problems.

The foregoing data, more detailed information in certain areas of EAP's operations and observations of the Study Group form the basis for recommendations given in the following section entitled FINDINGS AND RECOMMENDATIONS. Where appropriate, detailed facts or conclusions leading to specific recommendations are given.

ITEM	UNIT	1956	1961	1970
Students	Number	158	155	188
Faculty	"	16	17	25
Administration ¹	"	12	22	22
Other Employees	"	210	144	195
Buildings	"	112	137	186
Cost of Buildings	Dollars	565,014	697,145	1,175,000
Tractors	Number	1	13	13
Motor Vehicles	"	"		27
Horses			37	45
Oxen			26	21
Operating Expenditures	Dollars	400,000 ²	563,000	799,000
Farm Acreages:				
<u>Agronomy</u> ³				
Corn for grain	Acres			155
Corn for seed	"			22
Corn for silage	"			95
Sorghum	"			76

¹Includes 3 also listed as faculty. ²Estimated. Much of administration and accounting performed by United Fruit Company at no cost to School. Without adequate information on such costs and because of changes in accounting methods, the estimate is only approximate and is subject to substantial error. ³The Agronomy Department utilizes 367 acres of cropland. However, due to double cropping, the total acreage of crops is 449.

ITEM	UNIT	1956	1961	1970
Beans	Acres			57
Cotton	"			3
Rice	"			23
Other	"			18
<u>Horticulture:</u>				
Vegetables	"			11
Fruits	"			44
<u>Animal Industry:</u>				
Grass for beef production	"			606
Grass for dairy cattle	"			185
Hay production ⁴	"			106
Livestock Numbers ⁵				
Swine	Number		86	175
Beef cattle	"		335	503
Dairy cattle	"		172	153
Oxen	"		27	21
Horses and mules	"		49	53

⁴ Hay produced on grass land also used for pasture. ⁵ Livestock numbers for June of year indicated.

FINDINGS AND RECOMMENDATIONS

Summary

Better administration, a shift in emphasis from production to education, an enlightened personnel policy, and effective communications between students, faculty and administration appear to be the keystones of an improved program for the Escuela Agrícola Panamericana. Administrative responsibility needs to be clarified and delegated. Members of the faculty, particularly younger members, must be offered some hope of advancement with a well defined system of salary increases, promotions, scholarships and longer term contracts for those that have proven themselves. Current emphasis on production needs to be reduced by curtailing food demands and improving production methods and facilities; and special recognition needs to be given outstanding teaching. Effective two-way communications between students and faculty and administration, and between faculty and administration must be developed. A mutual confidence and understanding must be achieved. In order to reduce costs, surplus tractors, motor vehicles, horses and oxen should be disposed of; the construction of more buildings should be halted; labor and staff that become redundant with better organization should be phased out; and consideration should be given to eliminating the Development Program that has proven to be costly. Details concerning these and other recommendations are given under the sub-headings designated as Administrative Recommendations and Academic Recommendations.

The recommendations are not necessarily given in the order of their priority. Both the timing and in some cases the extent of their implementation should depend upon circumstances and the judgment of those who are thoroughly familiar with EAP and with local conditions. Although the direction of change indicated may be correct, in some instances it may not be desirable to go as far or as fast as suggested, and in others it may be desirable to go farther and proceed faster than indicated.

Administrative Recommendations

1. In the absence of second level administrators, management of EAP tends to be a "one man show". Under the circumstances we believe that the Director does an excellent job; but it is not possible for him to devote enough attention to broad problems of managing the business and academic sides of the School and take care of the many details with which he is now beset. Recommendation:

An Associate Director - Business, and an Associate Director - Academic should be added to the administrative staff of the School. These should be well paid, capable people who are able to carry out their respective roles under the general supervision of the Director.

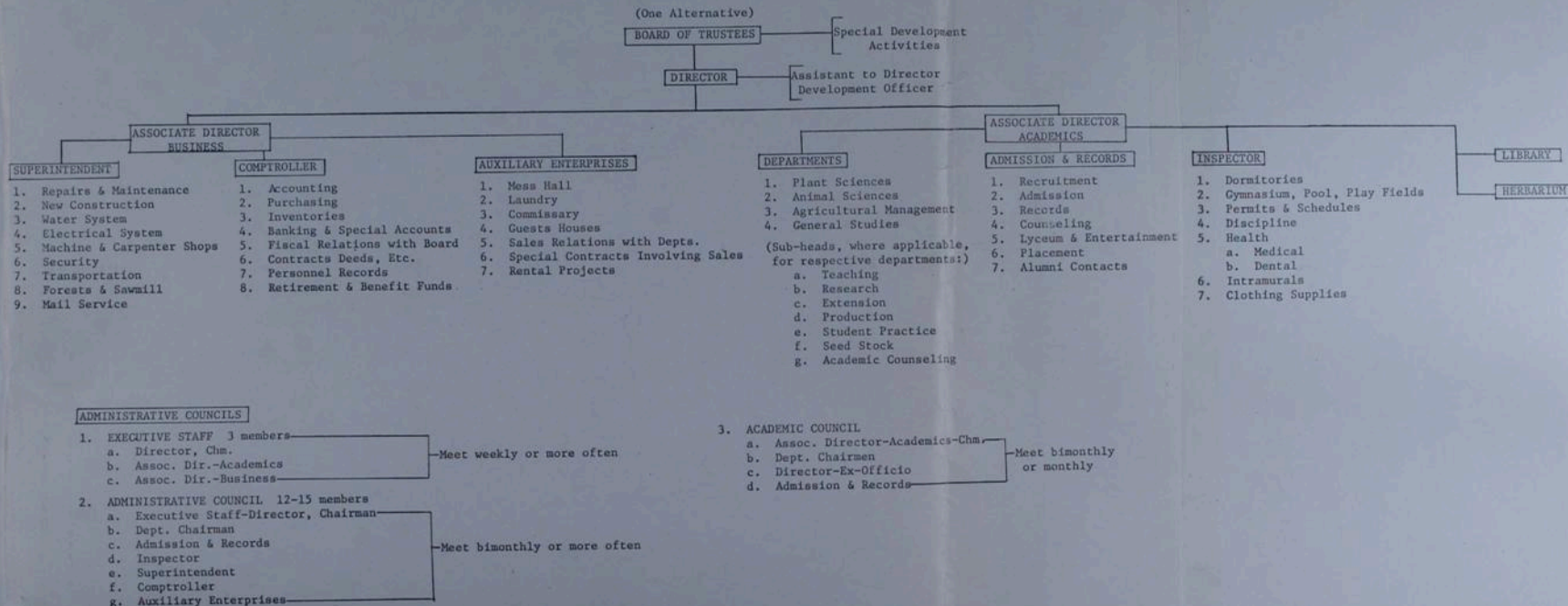
In figure 1 is suggested one possible organization chart for EAP. No doubt the Director and others who are more familiar with the functions and personnel of the School can improve upon the detail indicated. This organization chart contemplates the establishment of administrative and academic councils to assist the Director in formulating administrative and academic policy for the EAP.

2. It will be noted that the suggested organization chart provides for four departments, namely, Plant Sciences, Animal Sciences, Agricultural Management, and General Studies. This would result from combining the present Horticulture and Agronomy Departments into one Department of Plant Sciences, the removal of courses such as agricultural accounting, agricultural economics, farm management and extension from the present Department of Sciences to a newly established Department of Agricultural Management, and renaming the present Department of Sciences as the Department of General Studies. These changes are considered desirable both for administrative and academic reasons. One strong chairman with a secretary can handle the work in agronomy and horticulture, and a separate Department of Agricultural Management is needed to participate in the establishment of an adequate system of records and accounts and in conducting cost and other studies that are so necessary for the effective operation and management of the School. Academic reasons for these changes are given under Academic Recommendations 1, 2 and 3. Recommendation:

The present Agronomy and Horticulture Departments should be combined into a Department of Plant Sciences; a Department of Agricultural Management should be established; and the Department of Sciences should be renamed the Department of General Studies.

Figure 1

ORGANIZATION CHART FOR ESCUELA AGRICOLA PANAMERICANA



3. Concurrent with the administrative reorganization suggested in 1 and 2 should be a careful delineation of the authority and responsibility of each administrator. We have found a lack of clarity and understanding on the part of some administrators as to the nature and extent of their responsibilities. This should be cleared up and probably more authority should be delegated to department chairmen, particularly with respect to departmental academic programs, employment of personnel, salaries and promotions and budgets. A department chairman should be given definite responsibility and then be expected to act like a chairman. Recommendation:

Job descriptions carefully outlining his responsibilities and duties should be made available to each administrator. Greater responsibility should be assigned to department chairmen.

4. Lack of good internal communications is a serious deterrent to effective administration at EAP. Offices of department chairmen and other administrators and faculty are spread over a wide area. Frequently professors, administrators and large groups of students and laborers are engaged in work at widely separated places. In order to establish communications, runners and motor vehicles are used, frequently in attempts to establish communications that prove to be both futile and expensive. Recommendation:

As a minimum, telephone communications should be established between the offices of the Director and department chairmen; and two-way radios should be installed in the vehicles used by these administrators.

Although such a system might entail a capital outlay of as much as \$5,000 or \$6,000, we believe that it would more than pay for itself in savings realized over a period of a few years.

5. There is evidence of a lack of well-organized planning of the EAP program. Well considered annual and 5-year plans should be prepared each year by each Department covering all aspects of its program. In preparing such plans, department chairmen should work closely with their faculties and with higher level administration. Trimester reports should give in detail progress toward carrying out established plans and such reports should explain any failures. Top level administration should check periodically on the success of departments in meeting their plans.

Recommendation:

Each year departments should prepare well-considered plans for the next year and should revise existing 5-year plans. Trimester reports of progress should be submitted to top level administration who in turn should check periodically on accomplishments and reasons for failure. Such trimester reports might include faculty workloads as suggested in Academic Recommendation 7.

6. As indicated in the section entitled THE PRESENT SITUATION WITH COMPARISONS, the heavy demand for production has placed an undue burden upon EAP and diverted attention from its major functions of teaching. For example, one department reports that about 90 percent of the effort of its teaching staff is devoted to production, field supervision and related activities and less than 10 percent to classroom teaching, research and extension.

One way to correct this problem is to reduce the demand for food. A move in this direction has already been made. Prior to July 1, 1971, members of the administrative staff, faculty and foremen and more skilled laborers paid on a monthly basis, totaling 79, were eligible to purchase meat and meat products at approximately one-half the market price. A new meat policy was instituted on July 1, 1971. Compensation of employees was adjusted to allow for the meat subsidy; and all meat was then sold at full market price. The results were dramatic. Sales of meat and meat products in July were less than half of sales in June. Actual sales during June and July were as follows:

	<u>June Sales</u> Lbs.	<u>July Sales</u> Lbs.	<u>Change</u> %
Beef	2601	1192	-54
Pork	829	378	-55
Meat Products	250	33	-87
Chickens	602	620	3

It is estimated that after a period of adjustment actual quantities of meat sold at full market price will approximate 70 percent of sales at half price. The annual adjustment in compensation for the meat perquisite was \$7,500. Additional returns from the sale of 70 percent as much meat at full market price will more than pay for this adjustment in compensation.

Several other food perquisites are still in effect. Free milk, ranging from 1 to 4 quarts per person or family daily and totaling 165 quarts a day, is supplied to 65 individuals or families; a pound of butter is provided free once a week to 28 families, and a quart of cream is supplied twice a month to 28 families. At reduced local prices these dairy products have a

monthly value of about \$700 and an annual value of \$8,400; and at Tegucigalpa prices a monthly value of \$1,000 and an annual value of \$12,000. Two baskets of fruits and vegetables are supplied each week to 29 members of the administration and faculty at an estimated value of \$350 a month or an annual value of \$4,200. One basket of free fruits and vegetables is supplied weekly to 35 employees described as "monthly employees" at an estimated value of \$200 a month or \$2,400 a year. Seven baskets of free fruits and vegetables are also sent each week to Tegucigalpa for the following: 2 employees who work in Tegucigalpa, a priest who holds mass at the School on Sunday, and the families of four staff members. The value of these is estimated at \$42 a month or \$500 a year. It is interesting to note that daily deliveries of 10 quarts of milk are made to three of the seven Tegucigalpa recipients of free fruits and vegetables. If all the dairy, fruit and vegetable perquisites were terminated and compensation of employees adjusted upward accordingly, the cost probably would be approximately \$15,000 annually. This we believe, would be more than offset by returns from sales and cost savings on reduced production.

Recommendation:

All perquisites in the form of free or subsidized food should be eliminated, and the compensation of those now receiving such perquisites should be adjusted accordingly. A central store equipped with the necessary storage and display equipment should be established to sell at prevailing market prices to the administrative staff and faculty and perhaps laborers of the foreman class food products of EAP and staple items imported from outside Zamorano.

The capital outlay for a central store such as recommended might be as much as \$40,000. However, it should pay for itself over time; and it would relieve the faculty to engage in its primary function of teaching

with related research and extension activities.

7. Further reduction in the demand for food could be realized by reducing the possibility of pilferage both in the fields and on the central campus. Observations and reports from some of the faculty suggest that considerable pilferage may take place. How to deal with it, however, is not entirely clear. We were told that limiting access to EAP was tried at one time and then abandoned. At present, watchmen are used, but apparently this is not too effective. Perhaps, a reorganization and tightening up of this type of security would help. The use of cyclone fencing around the more valuable crops might reduce pilferage enough to justify the expense. Recommendation:

Consideration should be given to ways of reducing pilferage in the fields and at the places of storage of food products at EAP. A Steward should be employed for the Mess Hall. His function would be to receive all food and supplies coming into the Mess Hall, control the storage of such items and release them to the Cook as needed. The Steward should be directly responsible to the Associate Director - Business.

8. An accurate knowledge of costs, production, and internal controls at least in major areas, is necessary for effective administration of any institution. In spite of a considerable number of records of different kinds, there is a surprising lack of knowledge of costs and production, and internal financial controls at the School.

One example is the Mess Hall where the cash outlays and the value of food supplied by different departments probably totals in excess of \$170,000 a year or more than a fifth of the School budget. Careful records should be kept not only of employed labor and food and supplies purchased but also

of the quantity and market value of food produced at the School and supplied to the Mess Hall. A careful record should also be kept of meals served to students, faculty, visitors, employees and others. In order to avoid a conflict of interest, the person responsible for such records, perhaps the Steward, should be someone other than the Cook. Periodically, someone from the business office should check up on the records that are being kept.

Another example is the cost of repair and maintenance of motorized equipment. These costs amounted to \$23,000 in 1968, \$28,000 in 1969 and \$38,000 in 1970. Obviously, this large an increase needs an explanation. Perhaps ancient equipment has reached a point where it should be scrapped. This could only be determined by keeping repair and maintenance costs for each major piece of motorized equipment.

The School is engaged in the production of a large number of different products. In the case of some of these it probably would be desirable to produce only enough for teaching purposes and purchase the balance required to supply the needs of the School. At least for those products that are suspect, enough records should be kept to permit an analysis to determine whether it is economical for the School to continue producing in excess of the amount needed for teaching purposes.

At the request of the Chairman of the Study Group, Professor Restrepo prepared a detailed study of the cost of producing corn for grain in 1970. His findings were that the cost per acre, not including a charge for the

use of the land, was approximately \$70. In order to arrive at the cost per bushel, it was necessary to determine the yield per acre. The yield figure for 1970 supplied by the Chairman of the Department of Agronomy was 55 bushels. However, a check on the quantity of corn delivered to the Animal Science Department and classified as "clean grain" suggests that the 1970 yield was only 41 bushels. Since the Animal Science Department is the only user of corn for grain and since we are aware of no sales of such corn, it appears that the yield figure provided by the Chairman of the Agronomy Department is incorrect. We have not yet obtained yield data for other years. Until such data are obtained and then only if we know they are reliable, can we determine a normal yield and the feasibility of producing corn for grain at the School. Recommendation:

A system of cost accounting and internal auditing should be established for the Mess Hall and other units involving large sums of money. Arrangements should be made for cooperation between the Department of Agricultural Management and other departments in keeping the necessary records and analyzing them to determine the feasibility of producing commodities that are suspected of being uneconomic.

9. Analysis of the development program of the School reveals that it has been relatively unproductive. Most of the gifts, particularly the larger ones, that come to the School are not received because of the development program. Only in the first two years of its operation, 1966 and 1967, did the Tegucigalpa Development Office show an excess of contributions attributable to it above expenses. Over a five-year period

from 1966 through 1970, the total deficit of this office has been \$39,000. The U.S.A. Development Office also shows a total deficit of \$39,000 for the five-year period, 1966 through 1970. The deficit for this office in 1970 was \$62,000. The total budget for the Development Program in 1971 is \$62,000 of which \$16,000 is for the Tegucigalpa Office and \$46,000 is for the U.S.A. Office.

We seriously doubt that the Development Program in its present form will ever be productive enough to justify its existence. The man in charge of the Tegucigalpa Office appears to be acting essentially as an Alumni Secretary. He could perform this function at much less cost at the School in Zamorano and at the same time teach one or more courses; or if he is unwilling to accept such an arrangement, the function of the Alumni Secretary could be assigned to a member of the faculty or administration. It may be, of course, that the head of the Tegucigalpa Development Office is performing other functions, such as maintaining good relationships with the Honduran government, that would justify the extra expense of maintaining the office in Tegucigalpa. In this case, of course, the present arrangement in Tegucigalpa should be continued. However, the office in the U.S.A. should be abandoned.

We believe that the people who can raise money in substantial amounts are those who are thoroughly familiar with the School and convinced of the importance of its mission for Latin America. An Alumni Secretary can collect small amounts from graduates of the institution; but a person or persons with greater stature are needed to obtain large contributions from

wealthy donors in Latin America and the United States. The Director or Associate Director of the School might be effective in securing large donations in Latin America and perhaps in the United States. In the United States a member of the Board of Trustees or former college president would have the stature to effectively solicit large contributions from wealthy donors. Compensation might be provided for persons, other than the Director and Associate Director, employed to solicit funds. Such compensation could be in the form of a percentage of the contributions realized from their efforts. A suggested list of "packages" representing needs of the School that might be used in approaching potential donors is given in a supplement to this report.

Recommendation:

The U.S.A. Development Office should be discontinued and the Tegucigalpa Office should be transferred to Zamorano unless functions of its head, such as maintaining good relationships with the Honduran government, justify the extra expense of maintaining it at Tegucigalpa. Consideration should be given to an alternative Development Program in which the Director or Associate Director, and one or more persons with the stature of a member of the Board of Trustees or former college president are engaged in soliciting gifts from wealthy donors.

10. The School is plagued with an unending stream of visitors who take advantage of free or partially subsidized lodging and food. This diverts attention of the Director and staff from their main educational function - and it is costly. Free food and lodging should be given only to guests who are very distinguished visitors or who have made or who are expected to make substantial contributions of their time or money to the School. Other guests should be required to pay enough, including overhead, to cover all the costs of their lodging and food, and in no

way should the Director or faculty feel other obligations to them. For example, a very tentative estimate suggests that the charge per room at Casa Popenoe and the Guest House should be \$10 or more per night as compared with \$5 that is now charged some guests. Similarly, the charge for breakfast should be increased to \$1.00 and the charge for lunch and dinner should be increased to \$1.50 or \$2.00 as compared with \$0.50 now charged for breakfast and \$1.00 for lunch and dinner. The number of guests probably will be reduced substantially if they are required to pay the full cost of lodging and meals. Lodging (when available) and food should be provided at full cost to the families of students visiting the School. Records should be kept under the supervision of the Associate Director - Business that will show the extent to which lodging facilities and food provided guests are self sustaining. Recommendation:

Only visitors who are very distinguished or who have or are likely to make substantial contributions of their time or money to the School should be provided with free lodging and food. All other visitors who make use of the lodging and eating facilities of the School should be required to pay the full cost, including overhead, of such items. The lodging facilities (when available) and eating facilities of the School should be provided for the visiting families of students, also at full cost.

11. We were surprised to learn that the School now has 20 oxen and 48 horses. The feed required for these animals would support a sizeable herd of cattle. Reported use of the oxen is as follows:

<u>Use</u>	<u>Number</u>
Distribution of feed to livestock	2
Distribution of food to Mess Hall and employees at the labor camp	2
Disposal of garbage - Horticulture Department	2
Disposal of garbage - Main campus	2
Hauling logs	4
Hauling sand	2
Held in reserve	6
	<u>20</u>

Most of these jobs except, perhaps, the logging operation and hauling of sand could be done better and more economically with horses or one or more of the trucks belonging to the School.

Probably not more than 12 horses are needed by the School, 6 for cowboys and 6 for watchmen. Unless stallions are needed for teaching, it probably would be more economical to purchase replacements. Recommendation:

About half of the oxen should be disposed of and many of the operations for which they are now used should be done with horses or trucks. All but 12 or 13 of the horses should be disposed of and a stallion should be kept for replacements only if needed for teaching purposes.

12. Buildings at the School are impressive. In December, 1970, the value at cost of the buildings was \$1,175,000. Since January 1960 the value at cost of buildings constructed was \$589,000. This construction was done mostly with funds provided by A.I.D. Contracts are now being negotiated for the construction at a cost of \$35,000 of a new Horticulture Department classroom and laboratory building, and for a new faculty house at a cost of \$16,000. At the present time, there are 26 faculty type houses. Of these 20 are occupied by the families of administration and faculty, 1 is occupied by bachelor professors, 1 is used for guests and 4 are vacant. There is also a large guest house and a large building for bachelor professors and administrators.

We believe that the buildings now in place or for which contracts are being negotiated are adequate for the needs of the School. No more buildings should be added unless it is conclusively demonstrated that

the need cannot be met adequately by fuller utilization of existing buildings. One exception to this general rule against further construction is the need for a new carpenter shop near the site of the new sawmill. Better administration and control of pilferage of lumber and supplies indicate that this is desirable.

There is always a temptation to add new buildings when this can be done at no cost to the School for their construction. We cannot overlook the fact, however, that annual maintenance costs are involved with each new building, and if provision is to be made for replacement an allowance for depreciation must be set aside each year. It is estimated that if the buildings were properly kept up there would be an annual maintenance charge of 2 1/2 percent. On the \$589,000 worth of buildings constructed since 1960, this would amount to a maintenance cost of \$14,725 a year. At a depreciation charge of 2 percent per year, \$11,780 would have to be set aside each year for replacement. Recommendation:

No more buildings should be constructed at the School unless it can be conclusively demonstrated that the need cannot be met adequately by fuller utilization of existing buildings.

13. Both the number and the advanced age of some of the motor vehicles used at the School are surprising. The following table gives this picture:

<u>Unit to which Assigned & Description</u>	<u>Yrs. of Service</u>	<u>No. of Vehicles</u>	<u>Total</u>
<u>Administration</u>			7
Director - Buick pass. car	6	1	
Supt. - IH Scout Pick-up	8	1	
Agent - Teguc. - IH Scout Pick-up	7	1	
Alumni Secy. - Teguc. - VW Sta. Wgn.	5	1	
Students, Staff & Guests - Sta. Wgn.	7 & 6	2	
Students & Staff - Bus 40 pass.	6	1	
<u>Agromony Dept.</u>			3
Head Prof. - Ford Pick-up	4	1	
Assoc. Prof. - Auto-mule	7	1	
Assist. Prof. - IH Scout Pick-up	10	1	
<u>Horticulture Dept.</u>			3
Head Prof. - IH Scout Pick-up	10	1	
Assoc. Prof. - Panel truck	7	1	
Assist. Prof. - Panel truck	7	1	
<u>Animal Husbandry</u>			2
Head Prof. - Ford Pick-up	4	1	
Part-time employee - IH Scout Pick-up	10	1	
<u>Science Dept.</u>			1
Civil Eng. - IH Scout Pick-up	10	1	
<u>General Operations</u>			9
Material Trans. - IH Trucks	10, 8, 5	3	
Streets & Grounds & Misc.			
IH Dump Truck	8 & 5	2	
Mach. shop - Auto-mule	8	1	
Mach. shop - Jeep (1942)	22	1	
Tractor shop - IH Scout Pick-up	10	1	
Electrical shop - IH Scout Pick-up	10	1	
<u>Chicago Museum</u>			1
Assoc. Prof. - Sta. Wagon	3	1	
<u>Mail Service</u> - Motorcycle	1		1
Total			27

Better management of the motor vehicles of the school could be achieved by installing two-way radios in the vehicles of key personnel, the elimination of overage vehicles and the establishment of a motor pool. If this were done, we believe that not more than 17 vehicles, including a motorcycle for transporting mail between Tegucigalpa and the School, could provide the transportation required better and at less cost than the 27 vehicles now in use. It will be noted that 17 of the vehicles have been in use for 7 years or more, and only 10 have been in use for 6 years or less. The cost of transportation with worn-out, overage vehicles is usually more than with newer vehicles. For this reason, a careful analysis should be made to determine what overage vehicles of the School should be eliminated. The cost of modernizing the School's fleet of motor vehicles might require a total capital outlay of as much as \$32,000, that is, 4 replacement vehicles costing \$16,000 in 1972 and 4 costing \$16,000 in 1973. In order to keep the fleet up to date in subsequent years, 2 vehicles at a cost of \$8,000 would need to be purchased each year. By doing so, however, we believe that the cost of transportation would be less than at present.

Installation of two-way radios in vehicles of key personnel would help eliminate unnecessary and unproductive use of vehicles. A motor pool could contribute to more complete use of vehicles. The use of the School's vehicles to transport visitors between Tegucigalpa and Zamorano should be restricted to distinguished guests and those who have or are likely to give substantial amounts of their time or money

to the School. Recommendation:

Overage, worn out vehicles now being used by the School should be eliminated. A motor pool should be established, and two-way radios should be installed in vehicles assigned to key personnel. The total number of motor vehicles should be reduced to not more than 17. An annual program of replacing overage, worn out vehicles should be adopted.

14. The inventory of tractors of the School reveals that 13 are in use, of which 9 have been in service 8 years or more. The units to which these tractors are assigned, their description, and years of service is given in the following table:

<u>Unit to which Assigned and Description</u>	<u>Yrs. of Service</u>
<u>Agronomy Department</u>	
I.H. Farmall #404	8
I.H. Farmall #504D	5
I.H. Farmall #656D	5
Ford	3
<u>Agronomy & Other Depts. as Needed</u>	
I.H. Farmall #140	10
I.H. Farmall #140	10
I.H. Farmall #460	10
I.H. Farmall #460	10
<u>Animal Husbandry Department</u>	
I.H. Farmall #504D	5
<u>Horticulture Department</u>	
I.H. Farmall #460D	8
<u>Farm Shop</u>	
Case, 40 HP	12
<u>Tractor Shop</u>	
I.H. Farmall #404	8
I.H. Crawler TD9	8

One or more of the overage, worn out tractors may be needed for teaching Farm Shop; but those that come under this classification and are not needed for teaching should be disposed of. By replacing some of the overage tractors and by establishing a tractor pool for fuller utilization it is likely that the tractor needs of the School can be met with fewer tractors and at less cost. The assignment of too many tractors to specific departments tends to result in inefficient usage. Recommendation:

Overage, worn out tractors not needed for teaching should be eliminated. Fewer tractors should be assigned to specific departments, and a tractor pool should be established for fuller utilization. The total number of tractors should be reduced to not more than 9. A program to replace tractors, as they become overage and worn out should be adopted.

15. Better organization and management should enable the School to perform its functions with a labor force that is only two-thirds to three-fourths of the present labor force of 200. Annual savings from such a reduction might amount to as much as \$30,000 or more. It could be achieved gradually over a period of as long as three years by not replacing those who quit or who are discharged for cause. If this kind of phasing out did not eliminate redundant labor at a desired rate, discharge of the least competent labor after giving sufficient notice might be required. Proper organization and management to eliminate overtime could save as much as \$5,000 a year. Recommendation:

A program to reduce the labor force from 200 to 150 should be adopted. Overtime should be eliminated by proper organization and management.

16. Reports from faculty and students alike indicate that both dental and medical service at the School are unsatisfactory. A rule should be established and strictly enforced requiring each student to present at the beginning of each school year certificates from a qualified doctor and dentist indicating that his health and dental condition is satisfactory. Indications are that the present doctor and dentist are unsatisfactory. Perhaps they can be retired due to age or infirmity. If this were done, an alternative arrangement might be to employ a nurse to care for the minor ills of students and faculty at EAP and to retain a dentist and doctor to care for major health and dental problems of patients transported to Tegucigalpa for care. Recommendation:

A drastic change in the medical and dental program of the School is indicated. Appropriate steps to improve the situation should be taken as soon as possible.

Academic Recommendations

Introduction

A general review of the academic side of the School reveals a rapid turnover of faculty, low classroom teaching loads and the absence of adults with whom students feel free to discuss their academic and personal problems. The rapid turnover of faculty is indicated by the following table:

<u>Years of Service</u>	<u>1971</u>	<u>1966</u>	<u>1961</u>
3 or less	12	11	5
More than 3	<u>13</u>	<u>10</u>	<u>12</u>
Total	25	21	17

A substantial increase in size of faculty is also observed. This probably is due to actions taken in anticipation of changing from a three to a four year program. Now that it has been determined that the School will pursue a three year type of program for the next 5 years, the number of faculty members can be reduced and less specialized faculty members recruited as present members of the faculty leave. Recommendations of this nature are given below.

Examination of the faculty teaching load for 1971 shows that 11 faculty members will teach only 1 course in one trimester during the year and 3 will teach no courses. This is due in part to the fact that three members have been at the School less than 1 year and two are also administrators. After allowing for this, however, it appears that the classroom teaching load is quite low. Since a relatively small part of faculty time is devoted to research and extension, it appears that a considerable part must be taken up by field supervision of students and food production. In 1966 and 1961, 3 members of the faculty were also engaged heavily in administrative work.

At the present time no one appears to have been formally designated to counsel with students. Since the function of the Inspector is to apply the rules of the institution, the students do not feel free to talk with him on other matters.

In order to get a better understanding of the above and of other academic matters, the Academic Sub-Group conferred with administrators, department heads, faculty members and students. In guiding discussions with department heads an outline that is included in the appendix was

used. In addition, each department head completed with the assistance of his faculty a form (also included in the appendix) for estimating the faculty workload for the second trimester. Course sequence and content were studied as were other background materials received from the director, admissions and record office and other sources.

As suggested in the Introduction of this report, the Escuela Agrícola Panamericana is unique in its intensive program of "learning by doing". The success of the School is clearly evident in the performance and contribution of its graduates. The established purpose, character and function of the School merit preservation. The following observations and recommendations concerning the academic side of the School are made in the spirit of improvement of a successful program.

Departments and Faculty

1. Resources of the School relating to the plant sciences are now divided between two departments - Agronomy and Horticulture. By combining these resources into one department, we believe that more effective teaching and use of faculty, workers and equipment would be realized. For administrative reasons the combination of the two departments into a Department of Plant Sciences was recommended under Administrative Recommendation number 2. Since many of the principles taught in Agronomy and Horticulture are the same, we also believe the two departments should be combined for academic reasons. Recommendation:

For academic as well as administrative reasons, the Departments of Agronomy and Horticulture should be combined into a Department of Plant Sciences.

2. The socio-economic area in agriculture is increasing in importance throughout Central America and the world. Records show that extension and agricultural business represent most of the employment opportunities for graduates of the School. The extension as well as the agricultural business employee is becoming more involved in the socio-economic aspects of agriculture.

A review of course content and comments from graduates and employers indicate that improvements are needed in the socio-economic area. Courses in the field such as agricultural economics, agricultural accounting, farm management and extension are now taught by faculty in the Department of Sciences, or, in the case of farm management, by the Farm Superintendent. By concentrating these and related courses in an Agricultural Management Department and by diverting more of the School's resources to such a department desired improvement can be achieved. The establishment of a Department of Agricultural Management was recommended for administrative reasons under Administrative Recommendation number 2. We believe that it is also desirable for the purpose of improving the academic program in the socio-economic area. Recommendation:

For academic as well as administrative reasons a Department of Agricultural Management should be established.

3. The Department of Sciences can be more accurately described by the name "Department of General Studies". If this change and those mentioned in 1 and 2 above were made, the School would then have four subject matter departments - Animal Sciences, Plant Sciences, Agricultural Management and General Studies. A clarification of the functions

of the subject matter departments is needed. Evidence of a lack of understanding of the role and function of the departments in the objectives of the School was very apparent. Recommendation:

Statements defining the purpose and objectives of each department should be prepared and circulated among the faculty and administration so that there will be a common understanding by all concerned.

4. Department heads were uncertain concerning their role in the administrative structure. Some of them reported that they had nothing to do with recruitment, selection, salaries and promotion of their own faculties. We believe that they could make a genuine contribution in such matters and should be included in decisions that are made. If this were done, we believe that the morale of the faculty would be improved. Recommendation:

Department heads should be included in decisions made with respect to recruitment, selection, salaries and promotion of their own faculties.

5. Regularly scheduled meetings of department faculties and of department heads and the Director are held. This provides a means for two-way communication that should be continued and probably expanded. However, these meetings are devoted almost entirely to matters relating to production and field practices. Specific time should be programmed at such meetings for the discussion of academic matters such as reviewing course content, methods of presenting teaching materials and securing cost data on the products of the different departments. Recommendation:

Regularly scheduled meetings of department faculties and of department heads and the Director should be continued; but more time should be scheduled for reviewing course content, methods of presenting teaching material and securing cost analysis data.

6. Teaching is the primary function of the faculty in each department. With the limited funds now available, extension and research should be engaged in only to the extent that they contribute to the teaching program. If additional funds become available, consideration should be given to increasing extension activities, at least to an extent that will not materially interfere with teaching; for it is in this area that EAP already has and can continue to contribute to the development of agriculture in Honduras.

Better overall management and control of the research activities should be established. An indication of this need is suggested by the fact that one department has been conducting research for a number of years and has not yet issued a report or publication concerning the results of its research. A system of research project statements and annual reports should be instituted. No research should be undertaken unless a project statement covering it has been approved by a Research Committee of the faculty and the Administration. Annual reports of progress on research projects should be reviewed by the Research Committee of the faculty and the Administration. If such reports do not reveal satisfactory progress and the possibility of obtaining useful results, the project should be discontinued and resources devoted to other purposes. If a faculty member fails to prepare a publication on his research results for submission to the Research Committee within a reasonable time, his research activities should be terminated. All results of research activities should be considered the property of EAP - not of the individual faculty member, and a

copy thereof should be kept on file in the Director's office. Recommendation:

including field practice
Teaching should be recognized by the faculty as their primary function. With limited funds now available, extension and research should be kept to that which will contribute to the teaching program. If additional funds become available, consideration should be given to increasing extension activities to an extent that will not materially interfere with teaching. Better overall management and control of research activities should be established.

7. Reports from departments on the extent of workloads of individual faculty members, as submitted on a form for this purpose that is included in the appendix, suggests that some variability exists in the workloads of professors. We recognize that it is difficult to standardize workloads that involve field practice and formal course offerings. However, because it is so important for morale, we believe that an attempt should be made to equate the work of the staff. Recommendation:

A committee should be appointed by the Director to determine some standard guidelines for computing faculty workloads; and the workload of each staff member should be reported for each trimester to an appropriate administrator. These reports should be used as a basis for equating workloads among the faculty.

8. Members of the faculty are, quite understandably, interested in the guidelines used for promotions and salary increases. The department heads and administration of the School should develop such guidelines and make them known to the faculty. They could be included in the mimeographed publication entitled "Guide for New and Prospective Staff Members", or in a faculty handbook. Recommendation:

Guidelines for promotions and salary increases should be developed and made known to the faculty.

9. Some professors are now using student evaluations of their teaching to help them improve their teaching performance. They report

that student evaluations are both fair and helpful. Evaluations from recent graduates both of courses and teaching performance should also be very useful in helping improve the teaching program. If the questionnaires used are carefully designed and properly interpreted, a combination of both student and alumni evaluations would be desirable.

Recommendation:

Consideration should be given to using student and alumni evaluations of teaching to help improve the teaching program.

10. For professional enrichment and motivation the faculty needs to have contact with professors from other institutions. The administration of the School is to be commended for taking steps to provide some of its faculty members with the opportunity for advanced study. This approach, however, is both limited and costly. An alternative would be to bring on to the campus one trimester a year a visiting professor, preferably one who speaks Spanish, to teach and consult with both faculty and students. If carefully selected, such visiting professors could broaden the horizons both of faculty and students. Recommendation:

A visiting professor should be brought to the Campus of the School at least one trimester a year as a means of providing professional motivation for the faculty and students.

11. The number of faculty members has been increased substantially in recent years probably in anticipation of changing from a 3-year to a 4-year program. Now that it has been decided that a 3-year program will prevail for the next 5 years, this process can be reversed. Since only 14 courses are taught each trimester, we believe that a maximum of 16

faculty members are enough to conduct the teaching program. A distinction should be made between faculty who conduct classes and those engaged only in supervising field work. The latter group should be designated as Auxiliary Professors, whereas those who conduct classes should be designated as Assistant, Associate and Full Professors. Professors trained at the Agronomo level who engage only in the supervision of field work should be designated as Auxiliary Professors. It might also be desirable to so designate inexperienced faculty members with the B.S. or M.S. degrees who serve essentially as aides to faculty members who conduct classes or who only supervise field work. The reduction in the number of professors and the change in designation can be brought about as faculty members leave and new faculty are added. Recommendation:

The number of faculty members should be reduced to not more than 16 and those who engage only in supervision of field work should be designated as Auxiliary Professors.

12. Some of the faculty turnover can be attributed to the expense of educating the children of faculty beyond the sixth grade. An allowance of \$800 per family is given to the faculty members who have children attending school between the seventh grade and college. We believe it would improve morale and help reduce turnover if this were changed to provide \$800 per year for families with only one child and \$1,400 for families with two or more children attending school between the seventh grade and college. Recommendation:

The education allowance for faculty with children in school should be revised so as to provide \$800 for families with one child and \$1,400 per year for families with two or more children attending school between the seventh grade and college.

13. The social climate at the School should be improved as a way to reduce faculty turnover. This requires leadership that has both understanding and finesse. It was suggested that a building equipped and made available for social activities of the faculty and their wives would help to improve the social climate. Recommendation:

The social climate at the School should be improved for the faculty. One of the vacant faculty houses should be equipped and used for social activities of the faculty and their wives.

14. Faculty salaries plus perquisites at the School are believed to be in line with compensation at Monterrey Tech and Honduras University. However, because of the isolation of EAP, additional salary incentives are needed to help keep good faculty. Increases of \$500 to \$1,500 a year would be desirable when merited by the training, productivity or useful experience of individual faculty members. Recommendation:

Faculty salary increases of \$500 to \$1,500 a year should be given when merited by the training, productivity or useful experience of a faculty member.

15. The isolation of EAP is the paramount factor causing high faculty turnover. The School is located 25 miles from Tegucigalpa on a narrow, crooked mountain road. Another factor is the inability of faculty to afford automobiles, television sets, washing machines and other modern conveniences because of prevailing high tariffs. This can be corrected only by a carefully planned and long range strategy in which unremitting pressure is brought to bear on key officials to encourage building of a good paved road between Tegucigalpa and the School and removal of tariffs on automobiles and other convenience items brought in for the faculty to use while at the School. There are rumors that plans

are in process for constructing the road in the next five years. Similar rumors, we are told, have been in existence for more than 20 years. Whatever the case may be, a strategy to bring about construction of the road can only expedite its occurrence if properly designed and executed. We understand that members of the staff at the institution in Turrialba, Costa Rica, have the privilege of bringing in duty free automobiles, washing machines and other convenience items. This encourages us to hope that the same might be done at EAP. Recommendation:

A strategy should be developed to bring about the construction of an improved paved road between Zamorano and Tegucigalpa and the removal of tariffs on automobiles, television sets, washing machines and similar items brought in for use of faculty while at the School.

16. Although classroom and laboratories are good, improvements are needed in some departments in the arrangements for office space and for clerical and secretarial assistance. Each department should have an office for its head; a clerk or secretary to handle the telephone, visitors, typing and correspondence, and filing; and there should be desk space for each faculty member with the rank of Assistant Professor or above. In order to provide the office space needed, it may be necessary to take over one or more of the vacant faculty houses. Recommendation:

Each department should be provided with an office for its head, a clerk or secretary and at least desk space for each faculty with the rank of Assistant Professor or above.

The Library

17. The library is the academic bank of an educational institution. Adequate holdings of books and periodicals provide a source of information for broad learning and reflective thinking. The library has made a good beginning, but it rightly deserves a more prominent role for both faculty

and students.

A spot check shows that the library is receiving a number of scientific journals. The subscriptions, however, to commercial or commodity type journals in English or Spanish are very limited.

A number of technical books in English are old editions, ten years or more in age. The problem of obtaining good Spanish translations is recognized, but the use of prime shelf space in holding these old editions in English is questioned.

Space arrangement in the library so as to provide more private reading and studying space is a consideration. A check in the library recorded 7 percent of the student-faculty population using the library in a day.

We are pleased that arrangements are under way for the library to provide a textbook service for the students. Recommendation:

- a. Faculty and students should be encouraged to increase their usage of the library.
- b. In order to facilitate such an increase, the library should be kept open on weekends at a time when schedules of the students permit more usage.
- c. Faculty, particularly department heads, should help in updating the library. Old technical books should be exchanged with other libraries for more desirable holdings or distributed in the subject matter departments. This exchange or movement will provide more prime space for up-to-date holdings.
- d. More subscriptions for applied or commercial type agricultural magazines in both English and Spanish should be added.
- e. A copying machine should be placed in the library. This equipment will allow students to copy desired pages from books - thereby reducing the clipping and cutting of sections from books. The cost of operation may be covered by charging the students a small service fee for each page copied.

The Curriculum

18. The three-year trimester curriculum with self-contained courses interwoven with field practice is a good one. The basic plan is particularly strong in agricultural technology. Comments from past students as well as employers of former students support this statement.*

Suggestions for strengthening the curriculum in the socio-economic area by establishing a Department of Agricultural Management to carry out a teaching program in the field were discussed in Academic Recommendation number 2. Also, the curriculum in the field of plant sciences should be improved by combining the Agronomy and Horticulture Departments into one Plant Sciences Department as suggested in Academic Recommendation number 1.

Although the program is strong in agricultural technology and to some extent in the basic sciences, plans that are in progress for improvement should be implemented. Such plans include the offering of subject matter in soil and water engineering and in plant diseases. Courses that include this subject matter might well focus some attention on environmental problems. Care should be taken to avoid highly specialized courses that are expensive and occupy too much of the curriculum. General - not specialized - technology is an outstanding strength in the School's program. A course in plant protection that covers both insect pests and plant diseases might be considered. Since a number of students will continue for a degree, some

* In checking responses from 41 employees in all countries represented with student attendance at the School, all employers rated graduates in job performance as either excellent or good in a four point category of classification.

aspects of applied physics could be taught in conjunction with mathematics or agricultural engineering courses. Recommendation:

The School should continue its present efforts to implement plans to include subject matter in its course offerings relating to soil and water engineering, plant diseases and applied physics.

19. An in depth study of course content and sequence is needed. Examination suggests the desirability of combining a few courses, revising others, and transferring certain courses and personnel to more appropriate departments. For example, soils is a basic course in the understanding of plant production, yet the course is taught in the fifth trimester. Recommendation:

A curriculum committee of the faculty should be established to study the content and sequence of courses offered by EAP. This committee should advise and make recommendations to an administrator responsible for the academic program.

20. Field practice is an important and characterizing feature of the School teaching program. If properly designed and directed, it can teach students both the "how" and the "why" of farm practices, and it can instill in them some understanding, respect for and knowledge of what performance to expect of those who perform the physical labor required in carrying out farm practices. Observations made and comments received from both faculty and students suggest that the teaching objectives of field practice can be achieved in less than the 4 hours a day now devoted to it. If production requirements are reduced as suggested in other parts of this report and if students are carefully supervised to insure that they achieve somewhere near their production

potential, it may be entirely possible to reduce field practice to 3 1/2 or 3 hours a day and make such time available for other activities. Recommendation:

The field practice part of EAP's program should be reviewed periodically to be sure that it is achieving its full potential as a teaching method. In order to make time available for other activities, daily field practice should be reduced from 4 to 3 1/2 hours.

21. The present curriculum of the School is rigid in nature and provides no choices or elections for the students. It is designed for and does a good job of giving students a broad understanding of agriculture. We believe, however, that some provision should be made to enable interested students to obtain greater knowledge in particular areas of agriculture. The curriculum could be made sufficiently flexible to enable students to elect special problems in one of the subject matter areas - animal science, plant science or agricultural management. Subject matter clubs that conform to the departmental organization or subject matter seminars designed for students would provide students with an opportunity to strengthen or continue their interest in particular areas. Recommendation:

The Curriculum of the School should be made sufficiently flexible and arrangements should be made to permit interested students to increase their knowledge in particular subject matter areas.

The Student

22. The School has a discipline program that instills the meaning of personal self-discipline and responsibility. All responses from faculty and graduates reflect support for continuing this phase of EAP's program. However, some modification of the study time provided in the

evening was suggested by both faculty and students.* Under present arrangements a compulsory study period from 6:55 to 8:45 P.M. allows slightly less than two hours of study per night. This provides a very short period, 30 minutes for each of the courses taken daily, for formal study and preparation. Recommendation:

The evening study period should be increased one-half hour to 9:15 P.M. If experience demonstrates that most of the students are using this additional time effectively for study, consideration should be given to increasing the study period an additional one-half hour.

23. Students from 12 different countries are now enrolled in the School. This is in accordance with the original purpose of the institution to provide educational opportunities not only for Honduran boys but also for young men from other Central and Latin American countries. As is to be expected, a higher proportion of the students come from Honduras and neighboring Central American countries. In addition to differences as to countries there are also wide variations in socio-economic backgrounds of the students. This heterogeneity of the student population, which is probably increasing, requires difficult personal adjustments for many students - particularly those who are just entering the School. There is a genuine need for adults who are sympathetic and understanding to listen to and help solve student problems. An inventory of the campus shows that no one is specifically assigned to work in this area. The student, basically, has no place to turn for guidance and assistance in coping with his personal problems.

* A survey of 73 students indicated that 96 percent would utilize one or more additional hours of time for study if provided.

We believe that a system for counseling students should be established. Understanding, sympathetic faculty members could be designated for counseling; and if and when feasible, a psychologist-counselor could be added to the faculty to assist in difficult cases. Students could be allowed to go to the designated faculty-counselor of their choice; or they could be assigned to specific counselors. Recommendation:

A system of student counseling should be established at the School. This could include designated faculty counselors, and if and when feasible, a trained psychologist-counselor. A trained psychologist counselor should be selected who can teach one or more of the courses in the curriculum.

24. The method of selecting students to attend the School that show promise of completing the program is, we believe, very good. Three different kinds of examinations, the standing of the prospective student in his high school class, letters of recommendation and an interview with a member of the faculty can be combined to give a very good selection system if properly administered. In very rare cases it may be found desirable to admit students who do not make satisfactory examination scores or who have a low standing in their high school class; but this should be kept to a minimum and should be done only after careful consideration of members of the faculty knowledgeable in such matters. Wherever such exceptions are made, a careful record of student performance should be kept as a guide for future decisions. The per student cost is too great to permit the admission of students with little possibility of succeeding.

We have noted that this year 7 students who were accepted did not attend the School. In the future enough alternates should be kept in reserve and notified of their status as alternates so that if those who

have been accepted do not attend, alternates can attend in their place.

Recommendation:

In selecting students to attend EAP, ^{alternates} enough ~~alternatives~~ should be designated to replace any that have been accepted but fail to attend.

25. The tuition fee that students are required to pay is \$300 a year. Practically all other costs including room, board, clothing, books, and laundry are paid for by the School. In spite of this generous arrangement, it seems possible that some poor but promising students do not even consider attending EAP because of their belief that they cannot obtain funds to pay the tuition fee. Announcements to prospective students should make it clear that a limited number of poor but qualified students can obtain funds to pay at least part of the tuition fee either through loans or scholarships. Students who claim they are unable to pay the tuition fee should be required to provide evidence of their inability to pay. In order to obtain loan funds or scholarships to pay tuition fees for poor students, the governments or wealthy donors in countries from which such poor students come should be approached; or the wealthy parents of students who have graduated should be asked to contribute. Recommendation:

Announcements to prospective students of EAP should state that for a limited number of students who can prove that they are unable to pay the full amount of the tuition fee, funds to pay part of the fee may be obtained through loans or scholarships. In order to obtain such funds the governments or wealthy donors in countries from which the poor students come should be approached; or the wealthy parents of EAP graduates should be asked to contribute.

26. An increasing number of students desire an opportunity to continue studying for the bachelor's degree after receiving their Agronomo degree from the School. The records show that approximately 30 percent of the graduates are eligible for continuing formal studies; and a review of a recent graduation class indicates that 80 percent of those require financial assistance. Only two scholarships for this purpose are now available.* In order to provide the scholarships that are needed potential donors such as governments, wealthy individuals and businesses should be approached both in the countries of origin of the students and in the United States. Recommendation:

A minimum of 10 scholarships should be established for assisting graduates of the School who wish to pursue studies for the bachelor's degree at recognized institutions in either Latin or North America.

27. Student transcripts sent to other colleges and universities give a record only of classroom and laboratory performance. A record of field work performance is not included, presumably, because it is thought that other institutions would not be interested in such information. We believe that a complete record both of classroom, laboratory and field work should be included in order to give the complete picture.

As a means of stressing the importance of field practice and also to stimulate students to perform it well, credit as well as grades should be given. One or 2 credits could be given each trimester for daily field work of 3 or 4 hours. Recommendation:

* These may be available only in alternate years since some students will require more than a year to complete a program for the bachelor's degree.

Student transcripts sent to other educational institutions should give a complete record of performance in classroom, laboratory and field practice. For this purpose two transcripts might be provided, one giving academic performance in classroom and laboratory and the other giving performance in field work. Consideration should be given to giving 1 or 2 hours of credit for each trimester of daily field work of 3 to 4 hours.

28. General policy for the School is to assign grades to students according to a frequency distribution that results in a predetermined percentage of failure. Because of the highly select nature of the students, blind adherence to this policy can be unfair and unreasonable. Faculty members should be advised that it is only a general guide and that they should not adhere to it strictly.

The following table shows for the period, 1962 through 1970, the total number of graduates, those who were allowed to graduate with less than a 2.0 grade point average, and the minimum grade point average with which a student was allowed to graduate:

<u>Year</u>	<u>Total No. Graduates</u>	<u>Graduates with Less than a 2.0 Grade Point Average</u>	
		<u>Number</u>	<u>Minimum Grade Pt. Avg.</u>
1962	52	0	
1963	48	0	
1964	40	2	
1965	59	1	1.94
1966	48	12	1.56
1967	57	12	1.71
1968	55	10	1.70
1969	55	13	1.76
1970	59	21	1.63

The increase in the number of students allowed to graduate with less than a 2.0 grade point average since 1964 as shown in the table suggests that there has been a relaxation in the requirements for graduation, or the grading has become more rigorous. However, the Director reports that neither is the case and that the difference from earlier years can be attributed to the fact that since 1964 grades in field practice, which were usually A's or B's, are no longer included in computing the grade point average. In order to avoid the possibility that alumni and others may construe the graduation of students with less than a 2.0 average as a relaxation of standards, a system of grading should be established that will permit students who are worthy of graduating to achieve an honor point average of at least 2.0.

Recommendation:

Consideration should be given to a grading system for the School that will permit students who are worthy of graduating to achieve an honor point average of at least 2.0.

BUDGET FOR 1970 - 1976

Budget estimates for 1970 - 1976 are given in the following series of tables. The first table gives the budget estimates that were arrived at by making adjustments in the 1971 budget for changes recommended in this report. The recommended changes are summarized in the other tables.

It will be noted that estimates were made only for income from endowment, matriculation fees and sale of School products. No attempt was made to speculate on the income from gifts and grants, although the deficit that has to be made up from such sources is indicated. In general because of increased current expenditures and outlays for betterments, the deficit will be greater in 1972 than in 1971; but in subsequent years it will be substantially less.

ESCUELA AGRICOLA PANAMERICANA

Budget Estimates, 1970 - 1976¹

<u>Current Income from:</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Endowment	309.4	340.0	345.0	350.0	355.0	360.0	365.0
Matriculation Fees	18.1	40.0	40.0	40.0	40.0	40.0	40.0
Sale of School Products	47.5	50.0	82.0	82.0	82.0	82.0	82.0
	375.0	430.0	467.0	472.0	477.0	482.0	487.0
<u>Current Expenditures:</u>							
Instruction and Administration	390.0	411.0	511.0	504.3	502.1	511.1	520.1
Students' Expenses	127.3	118.0	116.4	114.8	113.2	113.2	113.2
General Operating Expenses	178.6	168.0	151.8	150.6	149.4	154.4	159.4
Development Program	89.6	62.0	36.1 10.0	10.0	10.0	10.0	10.0
Investment Management Services	9.4	9.3	15.0	17.6	20.0	22.6	22.6
Other Institutional Expense	4.2	3.5	3.5	3.5	3.5	3.5	3.5
	799.1	771.8	807.7	800.8	798.2	814.8	828.8
<u>Betterments</u>	22.3	25.0	109.0	36.0	28.0	28.0	28.0
<u>Deficit:</u> To be made up from gifts and grants ²	446.4	366.8	449.7	364.8	349.2	360.8	369.8

¹Estimated for 1972-1976 by adjusting 1971 budget figures to allow for changes recommended in report.

²Gifts and grants reported for 1970 and anticipated 1971 are:

U.S. Grants AID	<u>1970</u>	<u>1971</u>
Other Gifts	125.0	200.0
	<u>161.6</u>	<u>250.0</u>
	286.6	450.0

If the gifts and grants continue at the 1971 level, there will, of course, be a surplus above the expenditures indicated.

BUDGET ADJUSTMENTS RESULTING FROM REPORT RECOMMENDATIONS

INCOME

	<u>Increase</u>	<u>Decrease</u>	<u>Remarks</u>
Sale of School Products			
a. Meats	\$ 9,000		
b. Dairy products, fruits and vegetables	14,000		
c. Lodging and meals for visitors	10,000		To be realized by allowing fewer visitors the privilege of free board and lodging, by doubling the price of meals and by at least doubling the price of lodging.

BUDGET ADJUSTMENTS RESULTING FROM REPORT RECOMMENDATIONS

EXPENSES

	<u>Increase</u>	<u>Decrease</u>	<u>Remarks</u>
<u>Instruction & Administration</u>			
1. Salaries			
a. New Staff			
Ag. Ec. Dept. Head	\$ 9,000		To be employed beginning in 1972
Visiting Professor	8,000		" " " " " "
2 Assoc. Directors	30,000		" " " " " "
4 Clerks or Secys.	7,200		" " " " " " 3 are for department chairmen and 1 to substitute for clerical staff ill or on vacation
b. Merit Increases	8,000		To be given in 1972 to retain desired staff
c. Reduced Staff		\$36,000	Over period of 3 years, 8 professors that leave should not be replaced. Allow for decrease of \$13,500 in 1972, \$13,500 in 1973, and \$9,000 in 1974
d. Cost of Living Increase	9,000		To be added to salaries each year from 1972 through 1976. Amounts to about 4 percent a year increase
e. Salary Adjustments in Lieu of Perquisites			
(1) Meats	3,750		To be given beginning in 1972 to supplement like amount given be- ginning in July 1971 to cover one-half year. Can be reduced some- what as staff leaves
(2) Dairy Products, Fruits & Vegetables	15,000		To be given beginning in 1972. Can be reduced somewhat as staff leaves
2. Staff Benefits			
Educational Aid	4,200		To be given beginning in 1972. Provides an additional allowance of \$600 a family to an estimated 7 families with 2 or more children attending school between the 7th grade and college. Such families are already receiving an allowance of \$800 each per year
	<u>93,950</u>	<u>36,000</u>	

Continued

BUDGET ADJUSTMENTS RESULTING FROM REPORT RECOMMENDATIONS

EXPENSES (Cont.)

	<u>Increase</u>	<u>Decrease</u>	<u>Remarks</u>
<u>Instruction & Administration</u>	93,950	36,000	
3. Traveling Expenses	1,000		To be given beginning in 1972. Provides \$100 a year for each Honduran faculty or administrative staff member, and thereby serves as partial offset for annual travel expenses given staff members from other countries
4. Agronomy Department		\$ 1,200	Proportionate share of the department in a \$30,000 labor force reduction to take place at the rate of \$10,000 a year for 3 years beginning in 1972. The reduction indicated for the department will be spread over 3 years beginning in 1972.
5. Animal Science Dept.	20,000		To be added beginning in 1972 to budget figure for the department in 1971. Previously, a \$20,000 annual increase in herd value was deducted from total expenses of the department to arrive at a net expense figure. The livestock herds are now believed to be large enough to meet the needs of the School.
		3,900	Same remarks as given for Agronomy above
6. Horticulture Dept.		1,500	Same remarks as given for Agronomy above
7. Library	500		To provide for more subscriptions for applied or commercial type agricultural magazines
<u>Students' Expenses - Mess Hall</u>		4,800	Same remarks as given for Agronomy above
<u>General Operating Expenses</u>			
1. Salaries and Wages			
a. Reduction of Labor		18,600	Same remarks as given for Agronomy above

115,450 66,000 Continued

BUDGET ADJUSTMENTS RESULTING FROM REPORT RECOMMENDATIONS

EXPENSES (Cont.)

	<u>Increase</u>	<u>Decrease</u>	<u>Remarks</u>
	115,450	66,000	
<u>General Operating Expenses</u>			
1. Salaries and Wages (Cont.)			
b. Eliminating Overtime		\$ 5,000	To be realized by improving organization and management of labor program
2. Repair parts, gas, oil and grease for motorized equipment		10,000	To be realized by updating and reducing fleet of motor vehicles and tractors
3. Buildings, furnishings and equipment	5,000		Annual replacements
	120,450	81,000	
<u>Development Program</u>			
1. U. S.		46,000	Complete elimination of present program in 1972
2. Local		6,000	Removal of Tegucigalpa office to Zamorano in 1972
		52,000	

BUDGET ADJUSTMENTS RESULTING FROM RECOMMENDATIONS

BETTERMENTS

	<u>Increase</u>	<u>Decrease</u>	<u>Remarks</u>
Communication System	\$ 6,000	52,000	Should be installed in 1972
Central Store	40,000		Should be established in 1972
10 Motor Vehicles	16,000		4 vehicles costing \$16,000 should be purchased as replacements in 1972, 4 costing \$16,000 as replacements in 1973, and 2 costing \$8,000 as replacements each year thereafter. The total number of vehicles should be reduced from 27 to 17 in 1972.
1 Tractor	5,000		1 tractor costing \$5,000 should be purchased in 1972, and 1 costing \$5,000 each year thereafter. The number of tractors should be reduced from 13 to 9 in 1972.
Carpenter Shop and Equip.	25,000		Should be established in 1972 near site of new sawmill for better control and efficiency.
Desks and equipment for 4 secretaries and clerks	2,000		Should be purchased in 1972
Calculators for professors	5,000		Should be purchased in 1972
	49,000	52,000	

A P P E N D I X

Appendix A

EAP Study Group

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Director
Division de Ciencias Agropecuarias y Maritimas
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Sucursal de Correos "J"
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Appendix B

Outline for Departmental Visits

1. Broad purpose of the department
2. What are the departmental objectives?
How well are these objectives met?
3. Relationship with other departments
 - a. The intensity
 - b. Coordinating study programs
 - c. Sharing in future programs and program planning
 - d. Sharing equipment
4. Relationship to School. Communication in the School.
How is communication encouraged and maintained.
5. Department and the Library
 - a. Input of professor
 - b. Use of library (both student and professor)
 - c. Adequacy of holdings
6. Department and educational program
 - a. Course content - Who determines course content
 - b. Work and practice periods - relationship to course and laboratory program
 - c. How is course received?
 - d. Method in which course is taught
 - e. What materials are used in the courses
 - f. Exams, testing and grading
7. The department and the student
 - a. Academic advising
 - b. Student activities in the department
 - c. Opinions of students
 - (1) Teacher evaluation
 - (2) Course program
 - d. Managing poor performing students - low academic standing
8. Administration of the Department
 - a. Opinions of professors in the operation
 - b. How professors are promoted
 - c. General communications and understanding in the department
 - d. Future planning in the department
 - e. Plan for merit recognition
 - f. Plans for general faculty improvement

ESCUELA AGRICOLA PANAMERICANA

WORKLOAD OF THE PROFESSORS OF EAP IN HOURS-WEEK

Trimester

[illegible]

N- Special assignments