

## Retention of Agriculture Students in Selected State Universities in the Philippines

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### ABSTRACT

Using descriptive research design, complete enumeration of 56 junior BS Agriculture students uncovered factors that support and challenge students in agriculture degree program. In addition to the quantitative data, the researcher also incorporated qualitative data by conducting semi-structured interview with the selected members of the academe and administration. The quality of teaching contributes most to the retention of BS Agriculture students towards degree completion. Results of this study suggested that the selected State Universities have not gone far enough on a practical level to ensure that BS Agriculture students are supported in an effective manner. Thus, the program should be prioritized by providing an educational environment with adequate, effective and accessible administrative and educational support services specific for the students' academic success towards completing a degree in Agriculture.

**Key words:** agriculture, degree, completion, Philippines, retention, state university,

### 1. Introduction

The Philippines is an agricultural country composed of 92.34 million people (Census of Population and Housing, 2012), with 3.56 million students enrolled in higher education programmes in 1,699 (88%) public and 224 (12%) private higher education institutions (Commission on Higher Education, 2014).

Although the number of students attending universities continues to grow, improving graduation and completion rates remains a challenge.

Student retention is one of the important issues facing Philippine higher education today. To clarify, retention is an organizational phenomenon—colleges and universities *retain* students. Institutional retention rates, the percentage of students in a specific cohort who are retained, are often presented as measures of institutional quality.

In a predominantly agricultural country like the Philippines, there is a need for constant supply of well-trained, skilled and knowledgeable agriculture graduates to provide the manpower base for the implementation of the country's agricultural production and development programs.

While agricultural education has been recognized as strategic factor in boosting productive and human resource development in the Philippine agriculture sector, it has failed to turn out sufficient number of competent graduates (Aquino, 2005).

Commission on Higher Education (2010) records show that there are slightly over 10,000 students graduated in agriculture and its related fields, only two per cent in the overall discipline group in the Philippine higher education.

Table 1 shows the enrolment and graduates by discipline group in the Philippine higher education. As presented, agriculture and its related courses still lag far behind those of their allied degree programs being offered by the State Universities and Colleges all over the country.

**Table 1. Higher education enrolment and graduates by discipline group, academic year 2010-2011**

<b>Discipline Group</b>	<b>Enrolment</b>	<b>Graduates</b>
Agricultural, Forestry, and Fisheries	49,823	10,616
Engineering and Technology	629,157	93,578
Arts and Sciences	210,461	35,522
Education Science and Teacher Training	304,993	59,117
Medical and Allied	564,661	144,629
Business Administration and Related	672,130	100,107
Other Disciplines	191,524	30,949
<b>Total</b>	<b>2,622,749</b>	<b>474,518</b>

Retaining a student is fundamental to the ability of an institution to carry out its mission. A high rate of attrition (the opposite of retention) is not only a fiscal problem for schools, but a symbolic failure of an institution to achieve its purpose. Thus, it becomes important to understand and act on what research tells about student retention into the next year level and to graduation.

Although preparation, ability, and motivation are important factors in student retention, they cannot explain all the reasons that students retain or drop out (Reason, 2009).

Braxton (2009) indicates that the lack of student persistence may be labelled the departure puzzle. Given the availability of numerous guides on the selection of colleges and universities by the parents, career counsellors and students and the enormous amount of attention that college officials focus upon the college selection process, it is puzzling that almost one-half of students entering two-year colleges and more than one-fourth of students entering four-year collegiate institutions leave these institutions at the end of their first year (Spedding, 2009).

### 1.1 Objectives of the study

The purpose of the study reported in this paper was to bring to light factors that explain retention of college students in pursuing a Bachelor of Science in Agriculture course towards degree completion.

The study specifically examined the difference in the retention of third-year BS Agriculture students across accreditation levels; and recommended policies to improve retention among BS Agriculture students in selected State Universities.

### 1.2 Theoretical models of the study

*Astin's student involvement theory* deals with the factors that are important to the integration of students into the institution such as peer and faculty interactions and involvement in campus activities. In contrast to Tinto's theory concerning integration, this theory of Astin posits that the student plays an integral role in determining his or her own degree of involvement in college classes, extracurricular activities and social activities.

*Tinto's student integration model* applies the concept of integration to college students. Essentially, students drop out when they have not achieved a sufficient level of integration into the fabric of college life. In other words, the "fit" between person and institution is not conducive to persistence.

## 2. Methodology

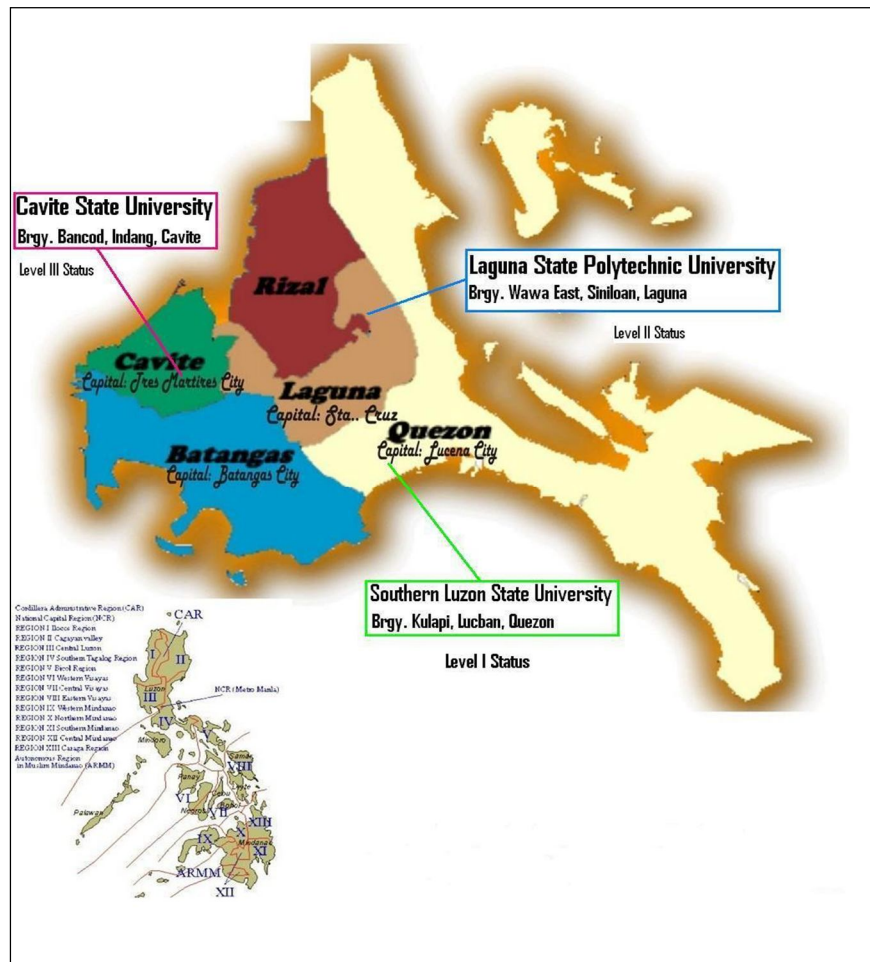
This section presents the study's research design, locale, respondents, sampling technique, data-gathering instruments and procedures, and the tools used for data analysis.

### 2.1 Research design

A descriptive research design was utilized to identify retention factors of agriculture students towards degree completion. This study employed a survey questionnaire to gather data regarding students' demographic characteristics and their perceptions on the retention factors.

### 2.2 Locale

This study was conducted in three State Universities in Region IV-A in the Philippines. Their respective type in terms of their current level of degree accreditation and location, as shown in Figure 1, are the following:



**Figure 1. Map showing the selected State Universities in Region IV-A, Philippines**

The **Cavite State University** formerly known as Don Severino (delas Alas) Agricultural College (DSAC) is a state university in the province of Cavite, Philippines. In February 2012, it has a total of 7, 817 students in its nine colleges. College of Agriculture, Forestry, Environment and Natural Resources has 361 students in all its degree programs.

During the second semester of the Academic Year 2011-2012, there were 236 students taking Bachelor of Science in Agriculture (i.e., 161 in first year, 44 in second year, 21 in third year, and 10 in fourth year). The student-to-faculty ratio is 20 to 1 (CvSU-Indang, Office of the University Registrar AY 2011-2012).

The **Laguna State Polytechnic University (LSPU)** is a state university in the Province of Laguna. It has four regular campuses in Santa Cruz (the main campus), Siniloan, San Pablo City, and Los Baños, two satellite campuses — LSPU-Nagcarlan and LSPU-RECS Complex in Santa Cruz — and two International Language Studies Centres in Thai Nguyen University, Vietnam, and Changwon College, South Korea. The University has a total of 2,596 students in its ten colleges. College of Agricultural Science and Technology has a total of 340 students in its degree programs.

There were 77 students taking Bachelor of Science in Agriculture (i.e., 36 in first year, 16 in second year, seven (7) in third year, and 18 in fourth year). The student-to-faculty ratio is 20 to 1 (LSPU-Siniloan, Office of the University Registrar AY 2011-2012).

The **Southern Luzon State University** (SLSU), formerly known as Southern Luzon Polytechnic College (SLPC) is a state university with eight campuses in Lucban (the main campus), Tagkawayan, Alabat, Polillo, Sampaloc, Lucena, Tiaong, and Infanta. The main campus has a total of 9,696 students in its seven colleges. College of Agriculture has a total of 357 students in all its degree programs.

There were 122 students taking Bachelor of Science in Agriculture (i.e., 54 in first year, 31 in second year, 28 in third year, and nine (9) in fourth year). The student-to-faculty ratio is 20 to 1 (SLSU-Lucban, Office of the University Registrar AY 2011-2012).

### 2.3 Respondents of the study

The sample consisted of the total enumeration of all third-year BS Agriculture students for the second semester of the academic year 2011-2012. These students were purposively selected as the ones who remained through their second year of college in the same institution to continue their third year.

### 2.4 Sampling technique

The study selected targeted schools based on the level of degree accreditation in agriculture including the SLSU representing the Level I Status, LSPU representing the Level II Status and CvSU representing the Level III Status.

*Level I accredited status* is granted for programs after a formal survey, effective for a period of three years; *Level II accredited status* is granted for accredited programs effective for a period of three or five years; while, *Level III accredited status* is granted for programs which have met a reasonably high standard of instruction, highly visible research tradition, strong faculty development tradition, and extensive and functional library and other learning resource facilities ([http://www.ched.gov.ph/ched/www/index.php/eng/Information/CHED\\_Memorandum-Orders/2005](http://www.ched.gov.ph/ched/www/index.php/eng/Information/CHED_Memorandum-Orders/2005) (October 08, 2012)).

A total of 56 students enrolled in the BS Agriculture program of the selected State Universities. Specifically, 28 students from SLSU, 21 from CvSU, and 7 from LSPU completed the questionnaires at the end of their class period.

### 2.5 Data-gathering instrument and procedure

The study was conducted using researcher-made questionnaires which determine the student's demographic characteristics, and their retention. Retention factors were measured using perception-survey statements. They were determined using four-point degree scale ranging from "no contribution" to "major contribution to my retention".

In addition to the student's self-administered questionnaire, 86 faculty and administrators completed a separate questionnaire during their vacancy period.

The researcher also conducted Key Informant interviews with selected members of the academy and administration including the Course Adviser, College Dean, Office of the Student

Affairs (OSA) Director, University Registrar, Campus Director, and the State University's President and Vice Presidents to ask for their personal viewpoints regarding the factors that support/enhance and hinder student persistence and retention towards degree completion.

Confidentiality was addressed by assigning a code number to each student as they completed the survey and using only that code to indicate survey responses.

## 2.6 Tools for data analysis

The study made use of the Statistical Package for the Social Sciences (SPSS) software version 16 in analyzing the data. It employed descriptive analysis (i.e., weighted means) to analyze items related to students, faculty and administrator evaluations of the retention factors.

## 3. Results and Discussion

This section presents the data gathered, and organized according to the objectives of the study. In order to facilitate analysis and interpretation, quantified data were tabulated and are presented based on the order of overall weighted mean from the highest to lowest value/s.

Table 2 presents the factors that explain retention of third-year BS Agriculture students. These 20 items on retention factors deal with the student perceptions of the institutional issues, characteristics, services, also their evaluation of their institution's ability to maintain the enrolment by implementing some student retention "best" practices. Student respondents identified the retention factors using four-point degree scale ranging from "no contribution" (1) to "major contribution to my retention" (4) Retention factors are represented by R<sub>1</sub> – R<sub>20</sub> in Tables 2 and 3.

**Table 2. Students' perceptions on factors that explain retention**

ITEM no.	INSTITUTIONAL ISSUES, CHARACTERISTICS, AND SERVICES ( Students' Perceptions)	SLSU	LSPU	CvSU	OVERALL
		Level I	Level II	Level III	
		Weighted Means			
R12	Quality of teaching	3.57	3.14	3.86	3.63
R16	Student engagement in classroom (active learning)	3.39	3.14	3.52	3.41
R15	Student employment opportunities	3.43	3.14	3.29	3.34
R17	Student-institution "fit"	3.25	3.00	3.43	3.29
R14	Student assessment strategies	3.11	3.14	3.48	3.25
R3	Attitude of faculty toward students	3.00	3.29	3.43	3.20
R5	Career exploration services	3.04	2.86	3.52	3.20
R20	Rules and regulations governing student behaviour	3.18	3.14	3.19	3.18
R13	Social environment	3.00	2.86	3.38	3.13
R1	Academic support services (learning centres, similar resources)	2.96	2.57	3.48	3.11



R18	Student involvement in campus life	3.14	3.00	3.10	3.11
R11	Personal contact between students and faculty	3.07	3.00	3.10	3.07
R4	Attitude of staff toward students	2.93	2.86	3.14	3.00
R6	Cultural environment	2.82	3.14	3.19	3.00
R7	Curriculum issues	2.86	3.00	3.05	2.95

Range: 3.26-4.00 - Major Contribution; 2.51-3.25- Moderate Contribution; 1.76-2.50- Little Contribution; 1.00-1.75- No Contribution

Factors that relate to retention

### 3.1 Students' perceptions

*Quality of teaching.* Consistent with the results gathered on the institution-related factors, it is the quality of teaching that had the highest perception rating from the student respondents. This indicates that the selected State Universities were supportive of quality teaching as reflected in the students' high perception rating of classroom-related factors in their curricular experiences.

Accordingly, students most appreciated classes where "real-world" connections were made. One of the teachers interviewed in the study talked about being very explicit in making those connections. That was, his way of connecting the learning within the course to other classes they were taking.

Four faculty members discussed the need for more visual presentation of material as a pedagogical technique benefiting students. When prompted for what they meant about "visual" material, faculty referred to material that allows the students to manipulate things, or draw what they are learning. Two faculty members expressed awareness of the need for instruction that incorporated multiple modes of learning. An instruction that accords with versatility (i.e., meeting needs of diverse groups), which is a desired characteristic of the curriculum (FAO, 2000 in Maredia, 2007).

*Student engagement.* Student engagement in classroom or their exposure to active learning was found to be the second in the list of the retention factors among the third-year BS Agriculture students. This agrees with the finding of Tinto (1993 in Tinto, 2002) that academic engagement activities have a positive influence on retention.

*Institutional fit.* Institutional fit means that institution's curricular and co-curricular programs fit with the student's personal, academic and career interests. Institutional fit was another factor to BS Agriculture students. Many interviewees found that taking on leadership roles in organizations, being active in various campus activities, mentoring younger students and working closely with their teachers contributed to student retention towards degree completion.

This finding agrees with those of several researchers including McClanahan (2004) and Habley (2010), who affirmed that institutional fit and campus integration are important to retaining college students towards degree completion (Smedley, Myers & Harrell, 1993; Hurtado, Carter & Spuler, 1996; Cabrera *et al.*, 1999 in Vallerand & Menard, 2000). Similarly, Pascarella and

Terenzini (1991 in Lotkowski, 2004) noted that most definitions of fit exhibit characteristics of students' interactions with the academic and the social, or non-academic, systems of the college. They further noted that these academic and social interactions affect both student retention and educational attainment. Several authors indicated that the roots of student attrition lay both with students and with the institution; in other words, the success of an institution and its students are inseparable (Levitz *et al.*, 1999; Tinto, 1999 in Tinto, 2006).

Table 3 presents the factors that explain retention of third-year BS Agriculture students. These 20 items on retention factors deal with the faculty and administrators perceptions of the institutional programs, curricular offerings, services and their evaluation of their institution's ability to maintain the enrolment by implementing some student retention "best" practices. Faculty and administrators identified the retention factors using a nominal scale (no/yes), and a four-point degree scale ranging from "no contribution" (1) to "major contribution to retention" (4).

**Table 3. Faculty and administration perceptions on factors that explain retention**

ITEM no.	PROGRAMS, CURRICULAR OFFERINGS, SERVICES, PRACTICES (Faculty & Administration)	SLSU	LSPU	CvSU	OVERALL
		Level I	Level II	Level III	
		Weighted Means			
R6	Curriculum review and revision practices	3.64	3.45	3.76	3.62
R9	Faculty development program	3.68	3.45	3.52	3.58
R1	Academic support services (learning centres, similar resources)	3.86	3.29	3.64	3.57
R2	Admissions practices/requirements	3.68	3.26	3.58	3.49
R13	Honour students programs	3.27	3.35	3.42	3.40
R3	Assessment programs	3.32	3.29	3.48	3.37
R14	Interactive, relevant, hands on, exploratory instructional practices	3.14	3.23	3.52	3.35
R10	Financial aid services	3.36	3.23	3.45	3.35
R4	Career planning and placement programs	3.23	3.58	3.12	3.31
R8	Extracurricular programs	3.27	3.29	3.33	3.30
R18	Student services (housing, personal counselling, academic advising)	2.82	3.03	3.55	3.21
R15	Rules and regulations governing student behaviour	3.00	3.06	3.36	3.20
R11	First-year programs	2.55	3.03	3.67	3.19
R16	Social activities programs	2.95	3.13	3.36	3.17
R17	Social skills course/program	3.00	3.13	3.18	3.12

Range: 3.26-4.00 - Major Contribution; 2.51-3.25- Moderate Contribution; 1.76-2.50- Little Contribution; 1.00-1.75- No Contribution

### 3.2 Faculty and administration perceptions

With reference to the perceptions of faculty and administration, the high-rated retention factors have to do with curriculum review and revision practices, faculty development programs,



and the availability of academic support services as contributions to the retention of BS Agriculture students towards degree completion.

It should be noted here that there is conformity between the way that students and members of the faculty and administration view these factors as contributing to institutional retention. The lowest perception ratings for students were the availability of student services in a form of personal/academic counselling/advising, and financial aid services have something to do with the way that faculty and administration perceived the availability of early-alert and intervention programs and the tutoring/mentoring program as the lowest among the retention factors provided in the questionnaire.

Issues related to course availability, content, and instruction affect a student's ability to persist; hence, institutional programs and services should have support mechanisms such as tutoring, mentoring, and career counselling to have positive effect on the student retention (Swail, 2004).

The significance of taking into account institutional factors equally with student-related factors and social/external factors is to underscore the importance of campus participation and knowledge in students' social and academic development. It is in fact the college that forms the foundation for college success. It is the institution that can identify and match the needs of individual students, a student cohort group, or the student body as a whole (Swail, 2004).

Faculty and administration made reference to students needing to "learn the system" with respect to being successful college students. Learning the system occurs on several levels. A successful student learns how to navigate university and campus life including locating and utilizing campus support programs. A successful student must learn productive study and work habits. Likewise, a successful student must come to comprehend the way learning takes place within agriculture. This includes adapting to or being naturally inclined toward traditional pedagogical methods, and being comfortable with the expectation that a large part of their learning occurs outside the classroom where they experience actual wading through mud and exposure to sunlight.

Faculty members, and especially academic advisers were clear that students "must undergo an orientation" during the registration process. Faculty members in the study approved the idea of Berger (1999 in Pino, 2005) and Sanchez (2000 in Leach & Zepke) seeing it as the responsibility of the student to figure things out on their own or with the help of their peers. If students have figured out the system of the degree program, have formed productive peer relationships in the form of study groups and/or mentors, and have strong intrinsic motivation and goal-commitment, the challenges of the curriculum can be overcome and they are successfully retained. The good students figure it out, but some change majors or leave the university. Furthermore, where the students' cultural practices are deemed inappropriate, incongruent with that of the institution (Berger, 1999 in Pino, 2005), deficient, or invalidated (Sanchez, 2000 in Leach & Zepke, 2009), students are more likely to experience acculturative stress (Sanchez, 1999 in Leach & Zepke, 2009) and to leave. Acculturative stress happens when students experience psychological stress resulting from imposing other culture (i.e., institutional practices) to them. Hence, as the integration model suggests, in order to succeed, college students should abandon their cultural background (i.e., student personal and academic interest) and adapt to the institutional culture (Tinto, 1975, 1993;

Smedley, Myers & Harrell, 1993; Hurtado, Carter, and Spuler, 1996; Cabrera *et al.*, 1999 in Vallerand & Menard, 2000).

The results of analysis of the differences in retention across accreditation levels revealed slight variations in the perception rating of students in some factors. Financial support plays an important role in bringing students to college and in retaining them; and faculty and administration perceived the effectiveness of their institution's scholarship program in helping students to find financial assistance to offset the costs of their education. But still, BS Agriculture students – particularly low-income students- find it increasingly difficult to afford their college education and they see it as one of the major barriers towards degree completion.

The effect of the retention factors appeared different across the accreditation levels of the selected State Universities in Region IV-A, Philippines. This signifies how accreditation level plays a crucial role in the student's perception of the institution-related factors that contribute to their retention towards degree completion. Degree accreditation level indicates how institutional processes, academic and co-curricular procedures are structured and implemented enough so as to achieve educational objectives. This was attested by the results on the factors that support retention of BS Agriculture students across accreditation levels based on the perceptions of students along with the faculty and administration. The higher the level of degree accreditation of an institution (i.e., CvSU), the higher is its evaluation rating in terms of the way students perceive and experience upon staying in their institution. While the opposite is true for LSPU and SLSU, in that the lower the level of degree accreditation status, the more its need to focus on addressing institutional issues, programs, curricular offering, services and practices to be able to support/enhance persistence and retention of BS Agriculture students towards degree completion.

#### 4. Conclusions

The results of this study suggest that, as indicated by the responses of the students as well as the faculty and administrators interviewed, the selected State Universities in the Philippines have not gone far enough to ensure that BS Agriculture students are supported in an effective manner. The junior and senior university officials need to more directly support this curricular program so that Agriculture serves as these agricultural state universities' major thrust.

However, the conclusions should not suggest that reenrolment or retention alone should be the goal of an institution for its students. For if retention alone becomes the goal, institutions will find themselves engaged in trying to hold students at all costs. Pressuring students to stay when it is not in their best interests to do so is not only wrong morally but also counterproductive: it often results in an accelerated attrition rate (Noel in Braxton, 2009).

Instead, as Noel argued, "The more students learn, the more they sense they are finding and developing a talent, the more likely they are to remain; and when we get student success, satisfaction, and learning together, retention is the outcome' (p. 1).

#### 5. Recommendations

Students who remain beyond their sophomore years are often highly motivated individuals with the ability to adapt to the challenging system of the degree program. For agriculture students,

all possible effort should be made to support those who have found the right choice in an agriculture field.

State Universities have the opportunity to make positive changes in the retention of these special populations of agriculture students. Several areas point toward the potential to make an impact. The following section presents some of the suggested policies for improving the institutional programs, curricular offerings, services and practices of the selected State Universities in Region IV-A, Philippines:

1. Combining academic and non-academic factors:

Integrating academic and non-academic information enables colleges to design and implement courses and programs that address both types of needs. Such programs may include first-year orientation programs, academic advising and tutorials, workshops in study skills, time management skills, critical thinking, planning, assertiveness training, library use, and cultural awareness. These programs should aim to increase levels of academic self-confidence, achievement motivation, goal and institutional commitment, and social involvement and support. These programs should strengthen ties between faculty and students and between students and their peers, through the creation of a socially inclusive and supportive academic environment; a campus environment characterized by fairness toward students.

2. Intentional institutional interventions:

State Universities can use various types of academic and non-academic information to develop and design their retention programs. Non-academic information may be derived from formal college surveys such as Your First College Year Survey questionnaire, first-year college experience orientation programs, and college student inventories and profiles.

Academic and non-academic information enables State Universities to develop and maintain a comprehensive student profile that can serve as both a performance indicator and a way to identify potential dropouts. This information alerts institutions to students who may have potential difficulties and enables them to direct these students into retention programs before their risk of dropping out increases.

3. Evaluation of early-alert and intervention programs

The economic impact of college retention programs should be determined through a cost-benefit analysis of student dropout, persistence, assessment procedures, and intervention strategies to enable informed decision-making with respect to types of interventions required—academic and non-academic, including remediation and financial support.

To make informed decisions, State Universities need to assess the costs of student dropout and time to degree completion with the benefits of improved student retention and graduation rates to determine the cost effectiveness of retention strategies, assessment procedures, and interventions—including remediation and financial support. Additionally,

resource availability and allocation must be assessed with respect to the costs of program provision and the benefits accrued from improved college graduation rates.

#### 4. Evaluation of student programs and services

As a means of empowering agriculture students, develop a way of gathering student feedback on programs on a yearly basis. This could be accomplished through exit interviews with seniors and open-ended anonymous surveys that offer a way to gather in-depth information from students for program improvement. Until faculty and administration listen to and recognize student concerns, change will not occur.

Student in the program and workforce in agriculture is an issue which has global implications in a world that is becoming smaller due to advances in technology and communications. Insights into reasons for the continued lack of representation are paramount to changing the landscape of the agriculture workforce.

This study has helped to illuminate ways in which students are supported and challenged in their academic pursuits in BS Agriculture program. Many of the issues that surfaced in the study support much of what has been written in the literature related to students in the selected State Universities' BS Agriculture programs. Where the study offers its most significant contributions is in contextualizing the findings to the institutions under study and offering data on which to base programmatic improvements.

This study has implications for not only educational processes during the course or in particular to the university but also the marketing of agriculture all over the country, and the targeting of that marketing effort.

The opportunity to enrol in a college level and the ability to complete educational objectives (e.g., occupational training, certificate or degree attainment) should define college access and success. Only a concerted effort by policy-makers, educational providers and other interested stakeholders can lead to equity and excellence in college education. By improving students' awareness and academic preparation, changing college finance structures and enhancing institutional responsibility, the nation can extend this vital opportunity to a larger, more diverse population of agricultural practitioners.

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