

# Japanese Higher Education Curriculum for Engineering and Agriculture

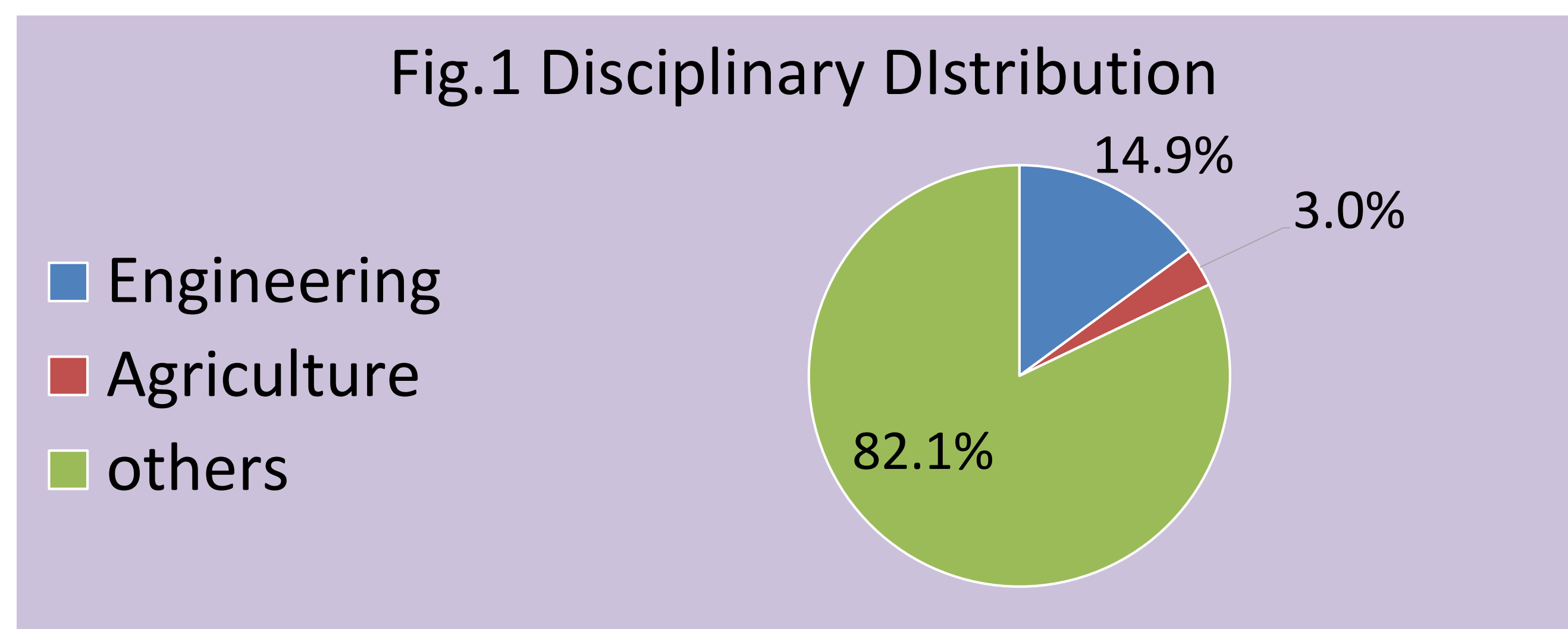
## History: Japanese University Education

**1<sup>st</sup> University: Tokyo Imperial University (1886); Law, Economics, Literature, Science, Engineering, Agriculture, and Medicine**

**2<sup>nd</sup> University: Kyoto Imperial University (1897); Law, Economics, Literature, Science, Engineering, Agriculture, and Medicine**

➤ The departments of Engineering and Agriculture played pivotal roles

## Present: Japanese University Education

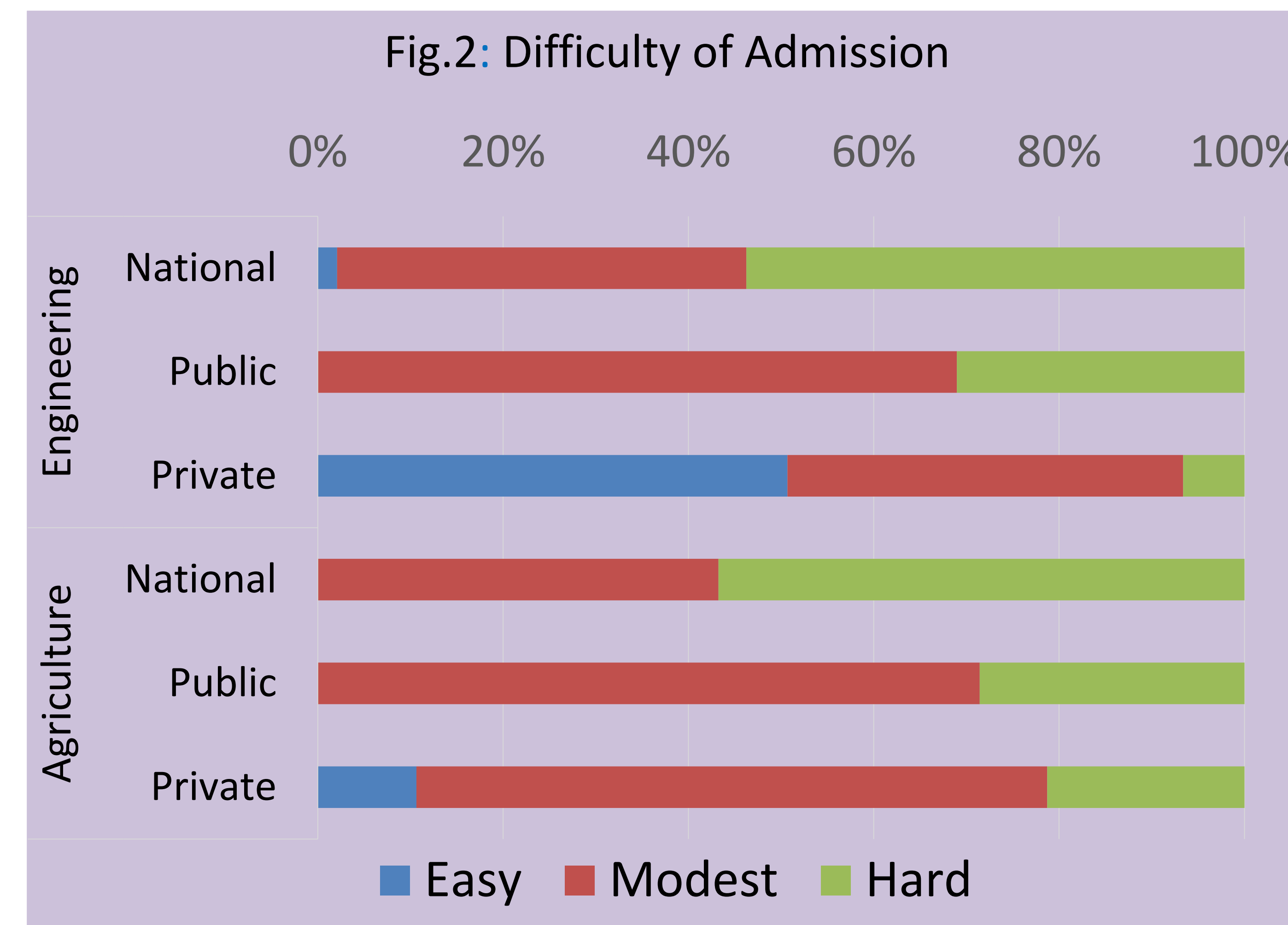


- Agriculture: 128 departments (Table 1)
- Engineering: 661 departments (Table 1)
- 2.53 million total undergraduates (Engineering 14.9%; Agriculture 3.0%)

Table 1: Number of Departments

Engineering		Agriculture	
Discipline	Course	Discipline	Course
Applied Chemistry	82	Agricultural Science	43
Mechanical Engineering	139	Agrochemistry	30
Electrical Communication	243	Animal Science	15
Civil Engineering & Architecture	142	Fishery Science	21
Others	55	Others	19

## Admission



- Wide range of difficulty in admission, especially in private institutions [Fig.2]

## Curriculum: credits for required courses(CRC)

Table 2: Average Credits

Engineering		Agriculture	
Discipline	Credit	Discipline	Credit
Applied Chemistry	52.5	Agricultural Science	47.4
Mechanical Engineering	52.2	Agrochemistry	56.0
Electrical Communication	52.1	Animal Science	57.7
Civil Engineering & Architecture	68.0	Fishery Science	43.2
Others	50.5	Others	56.6
Total	55.9	Total	51.3

- Students must obtain around 120 credits
- Credits for required courses are around 50%
- Difference between disciplines: Engineering > Agriculture [Table 2]

Table 3: Results of Multiple Regression Analysis (Engineering)

	B	SE	B	p
Applied Chemistry(dummy)	3.911	3.858	0.064	0.311
Mechanical Engineering (dummy)	2.280	3.776	0.038	0.546
Electrical Communication (dummy)	2.891	3.369	0.063	0.391
Civil Engineering & Architecture(dummy)	18.714	3.526	0.371	0.000
Difficulty of Admission	-0.546	0.149	-0.205	0.000
Number of Teachers	0.037	0.013	0.161	0.004

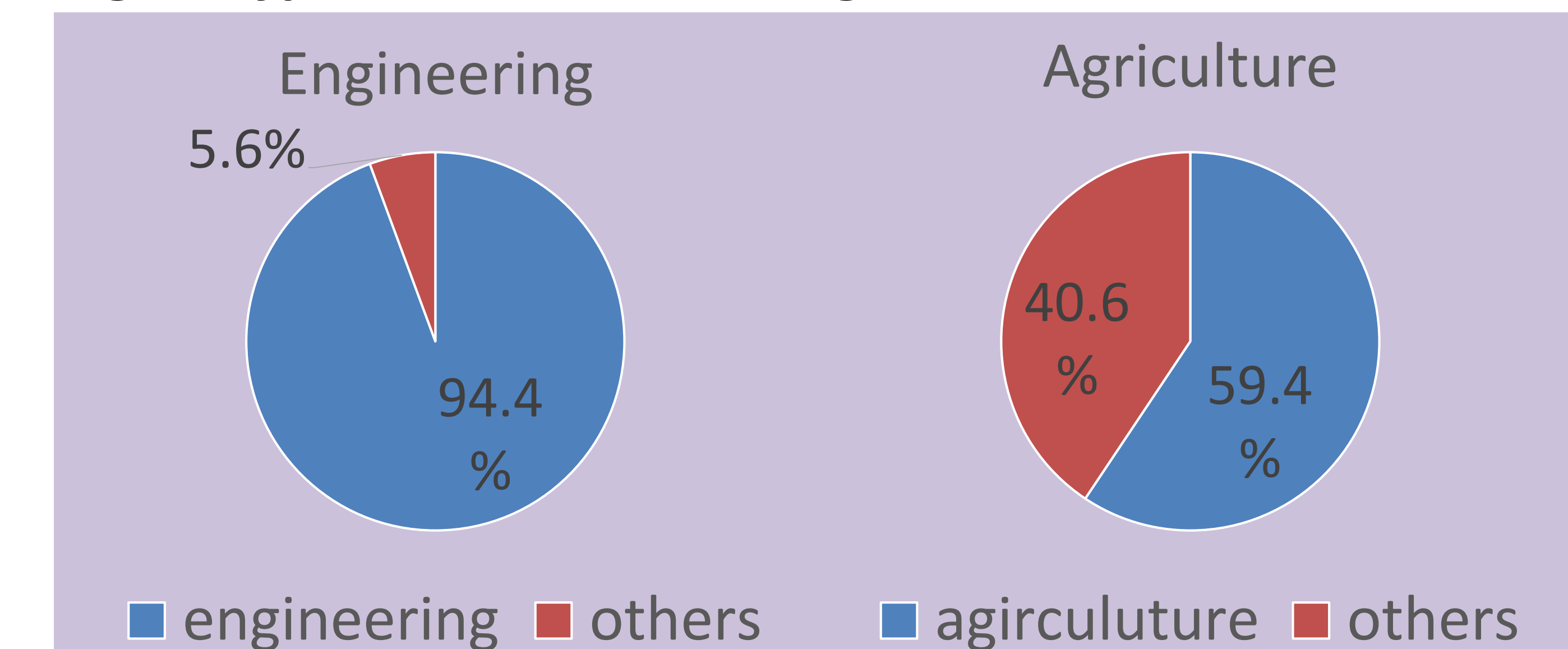
N = 477 R<sup>2</sup> = .127

## Differences of CRC in Engineering

- Discipline: Civil Engineering & Architecture > others
- Difficulty of Admission: easy > hard
- Faculty size: large > small

## Diploma: Engineering and Agriculture

Fig.3: Types of Bachelor's Degree



- Others [e.g., Bachelor of Design, Bachelor of Crafts, etc.] (5.6%)
- Bachelor of Agriculture (59.4%)
- Others [e.g., Bachelor of Fishery Science, Bachelor of Animal Science](40.6%)