

Agricultural education in State Agricultural Universities

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A commentary on state of agricultural education in India's agricultural universities.

Higher Agricultural Education in India

State Agricultural Universities (SAUs) are mandated to impart agricultural education, to conduct research, to disseminate latest happenings in agriculture and allied field activities to the farming communities in rural area and also to their children through education imparted by various schools, diploma colleges, and agricultural colleges at different levels (under-graduate, post-graduate, doctoral and post-doctoral). In other words, education in SAUs is closely interlinked with research and extension education. And logically these three components cannot be separated.

There are 71 universities imparting education exclusively in agriculture and allied sectors (horticulture, forestry, fisheries and animal husbandry) in India (Table 1). While some states have 8 agricultural universities, some have just one. The number of SAUs in states is strongly correlated with the population ($r=0.76$) and geographical area of the states ($r=0.66$). There are also states in the North-East which do not have an agricultural university except one Central Agricultural University (CAU) in Manipur. Issues that plague agricultural universities have been highlighted time and again (Tamboli and Nene 2011). Some of the pressing issues and our opinion on them are presented here.

Teaching staff and their strength

Most of the SAUs are providing education, research and extension education with limited staff strength. Due to government regulations the required manpower cannot be filled in; yet these SAUs are performing well. Indian Association of Agricultural Universities (IAUA) provides data on staff strength of Agricultural Universities in India. Only about 64% of the sanctioned posts were filled in the agricultural universities during 2012-13. This proportion ranges from 40 to 90% implying a range of agricultural universities from quite healthy to utterly

bad status in terms of manpower.

This has created a huge pressure on both the academic and non-academic staff of the SAUs. Involvement of academic staff in education, research, externally funded projects and their execution, extension activities including farmers' rallies, organization of various events (both academic and non-academic) has ultimately brought

Table 1. Number of agricultural and allied universities in different states in India.

State	No. of Agricultural & allied Universities
Uttar Pradesh	8
Karnataka	6
Maharashtra	6
Rajasthan	6
Gujarat	5
Haryana	4
Andhra Pradesh	3
Bihar	3
Kerala	3
Madhya Pradesh	3
Tamil Nadu	3
Telangana	3
West Bengal	3
Chhattisgarh	2
Himachal Pradesh	2
Jammu & Kashmir	2
Punjab	2
UttaraKhand	2
Assam	1
Delhi	1
Jharkhand	1
Manipur	1
Orissa	1
Total	71

(Source: www.icar.org)

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down the overall time share of a professor to prepare for theory and practical classes to impart effective education. While it is expected that senior professors should conduct classes of early undergraduates, the real situation is just reverse. The senior professors devote more time to administrative tasks at the cost of teaching and research (Rama Rao *et al.* 2007). This has a direct bearing on quality of education in most of the SAUs resulting into poor performance of the students.

Increase in rural population has resulted in increased pressure of admitting more number of students with less number of staff. This compels most of the professors to go for extra hours of daily work and working even on holidays allowing very less time for family. This has an adverse social impact on the life of the University staff. The struggle of agricultural teachers to balance between career and family has been scientifically proven (Murray *et al.* 2017). Extended work-hours of these teachers is the main concern. One of the fallouts of this, in USA, has been hesitancy among qualified personnel to enter in the teaching profession. In India, such reluctance is not visible due to severely limited employment opportunities. But the stress levels among teachers of Indian agricultural universities are very high (Uritkhinbam 2013) and widespread.

The solution lies in filling of all academic and non-academic vacant staff positions immediately. There is also a need for periodic increase in number of staff in universities keeping in view the recommended staff-student ratio at various levels of learning. Although outreach and communication have improved through application of ICT tools, classroom teaching is imperative especially at undergraduate levels thus demanding maintenance of appropriate staff-student ratios.

Quality of teaching staff

To get better quality of students, we need best quality teachers. This necessitates continuous exchange of ideas on the part of existing academic staff which is possible by training, attending seminars, symposia, and workshops both at national and international levels.

While the recruitment procedures put exaggerated emphasis on international exposure at all levels of recruit-

ment of teachers, there is little facilitation or autonomy to SAUs for sending their students or employees to foreign institutes even for conferences, let alone for trainings or higher education. Today's mantra being ease of doing business, it is clear that the same should be applicable to our educational systems. In most of the western countries and in many Asian nations, the university professors and/or scientists are permitted to attend international programmes without any hassles from administrative authorities including the government. If such culture is inculcated in the overall academic programme of both the teachers and the taught, it will help raising the standard of agricultural education in our country.

The competitive opportunities, too, are very limited. For example, the ICAR operated international fellowship programme offers only 30 fellowships every year. Moreover, these are meant for both Indian and overseas candidates.

Uniformity in regulations/infrastructure

As per the Constitution of India, 'agriculture including agricultural education and research' is a subject to be dealt by the states. As such the SAUs are bounded by the norms, acts and statutes of various states. Since these rules pertaining to promotion, age of superannuation, requirements for academic qualifications both at entry and promotional stages are different, it becomes extremely difficult to evaluate performance of SAUs and to enlist them according to different ranks.

For example, the performance of SAUs is assessed on the basis of foreign collaboration and consequent exchange of students and professors with collaborating foreign institutes. A few SAUs have already excelled in this particular area which has benefitted their standard of education. But most of the SAUs do not enjoy enough administrative freedom to take such steps. This may be considered as one of the important points to improve quality of education in SAUs.

In the recent past, many deemed and private universities have started UG, PG and PhD programmes in agriculture and allied disciplines. These should be governed by uniform norms at national level. For improving the quality of education in these universities, periodic third party

evaluation should be adopted.

The issues of declining funding and poor infrastructure in agricultural universities have worn out by repeated utterances. But a middle way can be achieved through foreign collaborations. We are lacking even on that front. A recent report on higher education (UNESCO-UIS 2014) revealed that India had one of the lowest proportion (<20%) of papers co-authored by foreign collaborators. Other countries, especially in the west, fared much better with this proportion even going in excess of 80%. Even though data is not available, the scenario in agricultural universities in India is certainly much worse.

Ranking of Universities

ICAR has recently carried out an exercise of ranking agricultural universities which, although appreciable, requires re-visiting. If we want to compare SAUs, they should be first put on a common platform. For example, central agricultural universities (CAUs) and centrally-assisted deemed universities (DUs) should not be compared with the SAUs. Similarly, universities placed at remote geographical locations should not be compared with those in metros, big cities and towns. The evaluation of the performance of the Universities should be based on the skill-oriented output, entrepreneurs developed, and quality research publications. In other words, the universities situated in remote areas must be provided better facilities in terms of finance, staff and infrastructure.

For illustration, the selection of candidates in the Agricultural Research Service (ARS) is a good indicator of this remarkable difference. The ICAR's deemed universities viz. National Dairy Research Institute (NDRI), Indian Agricultural Research Institute (IARI) and Indian Veterinary Research Institute (IVRI) were ranked 1st, 2nd and 5th respectively in this ranking exercise. These three DUs with another one – Central Institute of Fisheries Education (CIFE) ranked 35th – produced nearly 45% of the selected ARS scientists in 2015 (Anon. 2016). This is certainly a result of much better funding, infrastructure and manpower in these DUs. On the other hand, remaining 55% candidates came from just 16 universities engaged in agricultural education.

On many forums, SAUs are compared with Indian Institute of Technology (IITs), Indian Institute of Management (IIMs) and other Universities abroad. With the logic cited above, one should always remember that comparison can be made only if all universities including IITs and IIMs are kept on a uniform base in terms of all the facilities provided by the concerned departments, governments and the state governments. The SAUs mainly cater to the rural masses and agricultural sector. Therefore, the students admitted to SAUs represent rural areas and should not be equated to the students crowding the IITs and IIMs from urban background. A study of student profile in state agricultural universities in Uttar Pradesh indicated that majority of the students belonged to farming families (rural backgrounds) with low income levels (Singh *et al.* 2014).

For comparing SAUs with other universities and/or agricultural universities abroad, we should also keep in mind the percentage share of funds utilized for education in India and by other nations. The accompanying graph (Figure 1) shows a great difference which demands immediate steps to increase more funds for improving the standard of agricultural education in our country.

Attracting Talent

As mentioned earlier to attract meritorious students for studying in SAUs, we should provide incentive to the students. Many DUs (e.g. IARI, IVRI, NDRI) provide fellowships for each of the MSc and PhD students admitted to them. Such facilities are not available in SAUs as for which many meritorious students opt for DUs for higher studies and if not selected go for other alternative options. Even the foreign students opt for the SAUs or DUs which are located in the metros rather than in the remote areas.

Another way to incentivize students is assurance of their placement after completion of studies which is common in IITs and IIMs. This needs to be looked into while planning educational curricula in different SAUs. Placement of students as intern in the state-run/-controlled public sector agencies such as Agricultural Produce Marketing Corporation (APMCs), line departments, seed production agencies, and training centres run for farmers will

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help in employment generation as well as for utilization of talent and youth.

Professionalism in students

Universities exclusively imparting agricultural education are less than 10% of all the universities in India (Figure 2). Similarly, colleges exclusively imparting agricultural education are less than 1% of all colleges. And the student enrolment in such colleges is close to 0.5% of all student enrolment in higher education.

Thus, agricultural education in India is not for producing professional farmers. There are close to 14 crore agricultural land-holdings in the country. So, at least that many households can be called farming households. Even if we consider one child from each household to get agricultural education, it will take centuries of agricultural education at the current enrolment rate. If we want professional farmers, we need to strengthen the agricultural education infrastructure substantially. Therefore, the statement viz. –‘agricultural graduates do not practice agriculture’ is not well-founded. Agricultural education is for producing professionals who can intervene in the farming process through various employments (research and development, manufacturing of inputs, marketing of inputs, catalysts for adoption). By creating more and better opportunities in the above mentioned main agricultural sectors, it is possible to persuade agricultural graduates from opting for other fields like civil services and banking.



Figure 1. Expenditure on education as percentage of GDP of India compared with some developed countries and world average. (Source: UNESCO Institute for Statistics. <http://uis.unesco.org>)

Adding professionalism to agriculture and allied sciences is necessary. It is essential that agricultural graduates come up with start-up ventures in a big way. This requires providing special packages for graduates volunteering to practice agriculture with modern technology. Special concessions and subsidies to purchase farm machineries and equipments for setting up of custom-hiring centres are necessary to act as service providers, facilitators or mediators between farmers and industry. Singh *et al.* (2014) found that the agriculture graduates gave preference to civil and administrative services over agro-based public or private jobs. A large proportion of agriculture graduates still flock to universities where they can prepare for competitive exams without burden of studies.

Nevertheless, a good sign can be gleaned from a recent report on start-ups by agripreneurs (MANAGE 2017). Of the 100 start-ups detailed in the report, more than 90 are launched by students of agricultural universities. They range from holders of agriculture diploma to agriculture PhD. Agriclincs and Agribusiness Centres Scheme of the Central Government played a crucial role in this. Despite the focus being on agricultural graduates, the sheer variety of agribusinesses launched is overwhelming and encouraging. But the rate of conversion of trained manpower to successful bankable start-ups which at present stands around 95% (Figure 3) needs to be improved. This, in turn, needs implementation of at

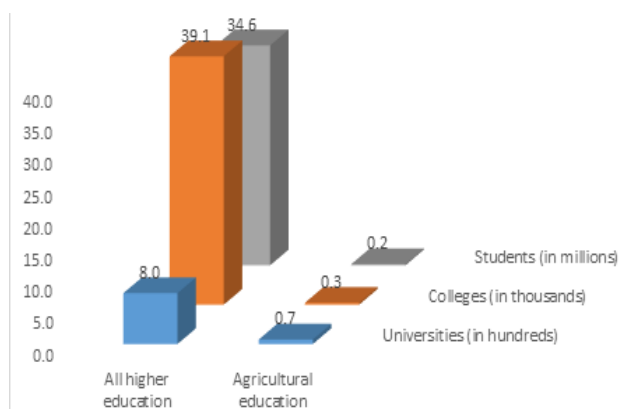


Figure 2. Comparison of agricultural education institutes vis-à-vis all higher education institutes in India. (Source: AISHE 2015-16 <http://aishe.nic.in>)

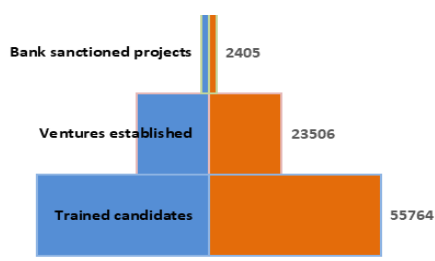


Figure 3. Progress of Agriliclinics & Agribusiness Centres (AC&ABC) scheme of Government of India for encouraging agricultural entrepreneurship as on 18.12.2017. (Source: www.agriclinics.net)

least some of the above mentioned interventions.

Way forward

Having said all this, there is a great role of humane heart in raising the standard of agricultural education; or for that matter any education. Individual motivation as a leader is above all funds and facilities. This motivation may come from a team of bright students alongside celebrated teachers, professors and scientists. Such teams in SAUs will make our country proud. Love for the nation, strong patriotic feelings for developing our nation can only lead us to a different height of development from where we can proudly say as Indians that we also possess many such brilliant ideas to contribute something to the world. It can not be done by government assistance alone. This should come from within each and every scientist, professor and student and only then we can come to the level of top-ranking Universities of the world.

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