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Agricultural Education and Research

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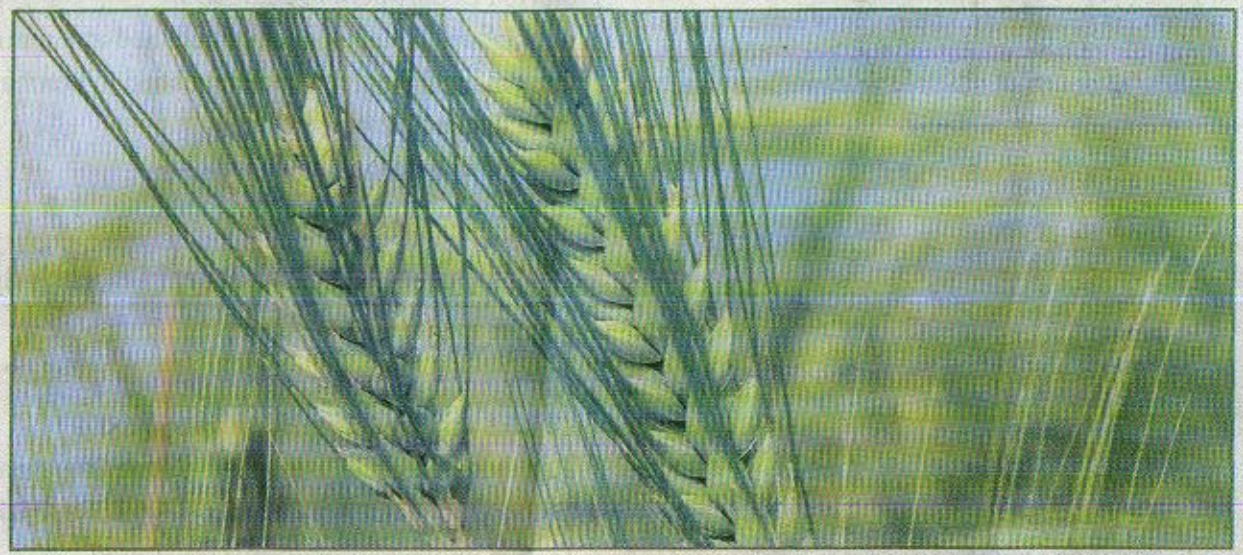
Agricultural education at a crossroads

WITH the advent of economic liberalisation and WTO regime some twenty years ago, the agricultural education, research and extension were required to be re-oriented and restructured to make them more market-driven and more compliant to climate change. But it seems that we have missed the bus. Even after a decade of the introduction of BT cotton, the policy makers for agriculture research are still in a dilemma. The Government is treading cautiously on genetic engineering in agriculture which has created a vast potential for increasing the productivity of different crops. The dilemma for state agricultural universities (SAUs) is whether they should go for this kind of research in a full-fledged way given that it is uncertain if GM food crops are in the interests of mankind. The SAUs also lack expert human resources and infrastructure for quality research.

A survey by National Academy of Agricultural Research Management (NAARM), Hyderabad says the quality of agriculture education and research in India has been on a decline over a decade. The decline in the intensity of agricultural research differs from state to state. One of the reasons for this may be that SAUs have remained passive in attracting brilliant students to courses offered by them. This impassiveness has created academic deficiency in terms of quality students and teachers and scientists. The result of the National Eligibility Test (NET) or recruitment of teachers and scientists organised by the Agriculture Scientist Recruitment Board (ASRB) for SAUs proves the point. A new crop variety if developed through traditional research methods takes five to seven years, and years to reach the farm gate.

FARMERS LEAVING FARMING

The increasing incidence of suicide by farmers and also more and more farmers leaving farming are points to pon-



der. Our farmers are yet to get drought and climate-resilient crop varieties. Climate change and increasing price of inputs and unaffordable price of farm produce has prevented farming from being a lucrative or remunerative business and it does not attract young people. The 2011 census indicates that less than 8% of the population is engaged in farming occupation. A December 2012 report of Institute of Applied Manpower Research—a part of the then Planning Commission—says about 2,035 farmers are losing the status of cultivators every day. Thus, a pertinent question for policy makers is how to retain farmers in their occupation. Apart from government schemes and subsidies, SAUs must ponder ways to attract farmers' children to courses offered by them. Needless to say, with few job opportunities, people from rural areas are leaving villages. There is a great exodus of rural youth; even MNREGA is not enough for them to stay at home. Further, those who are engaged in agriculture are reluctant to allow their children to pursue it as a full-time occupation. It is quite possible that parents involved in full-time farming are not aware of the opportunities available

for higher education in agriculture in India in general and their own state in particular. This obviously spurs their wards to go for courses other than agriculture. It is the responsibility of SAUs to make farmers aware that they offer courses for higher education in agriculture which will benefit them.

AGRICULTURE DEGREE NOT A PREFERRED CHOICE

Every year, the agricultural universities in the country admit more than 43,219 students at the UG level and 14,000 students at PG and 3886 at Ph.D. levels. However, agriculture, dairy, and veterinary courses are not sought after by students. The first choice of bright students today is medicine, engineering, IT, and so on. It's only when brilliant students do not get admission in the aforementioned courses that they opt for streams like veterinary, dairy, and agricul-

ture. This state of affairs leads to mediocre students seeking admission in agriculture, veterinary or dairy courses and thus the quality of research scientists in those faculties is not of the desired standard. This harms the quality of teaching and research.

Gujarat is a leading state in agricultural education but education and research at the four SAUs of Gujarat are not in sync with the needs of farmers, global market demand or climate change. A university for higher and lower education in veterinary, dairy and fisheries and allied sciences, named as Kamdhenu University, has also been established by the government. A sixth university—University of Organic Agriculture—was announced in this year's state budget. A perpetual complaint of these universities is that they suffer from a crunch of funds, inadequate sanction for teaching and research staff and, above all, a dearth of quality human resource in the market. A large number of posts are lying vacant because of qualified academic and research staff not being available.

GUJARAT'S PHENOMENAL GROWTH IN AGRI EDUCATION IN A DECADE

In Gujarat at present, there are ten agriculture colleges, four horticulture colleges, one forestry college, one home science and nutrition college, two fisheries colleges, three centres of Post Graduate Education and Research in Veterinary, Dairy and Fisheries, two agriculture business management colleges, four veterinary colleges, three dairy technology colleges, one food processing technology college, three agriculture engineering and technology colleges, one dairy and food technology college, one renewable energy and environmental engineering college, one

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agriculture bio-technology college and one basic science and humanities college, which teaches bio-technology, microbiology and biochemistry. Thus, in total, in Gujarat State Agricultural Universities and Kamdhenu University, 35 colleges and 3 Centres of P.G. Education and Research are functioning. The four SAUs and Kamdhenu University also provide lower level skill development programmes through their 30 polytechnics in agriculture, horticulture, agriculture engineering, agro-processing, nutrition and dietetics, home science and animal husbandry.

During the regime of Chief Minister Narendra Modi,

MARKET-DRIVEN AGRI-EDUCATION NEEDED

The graduates of the present agriculture education system are not cut out to meet market requirements. This may be one reason why agriculture graduates don't enjoy adequate job opportunities or are underemployed in comparison to engineering or IT graduates. Despite that, the students mostly opt for jobs, with hardly anyone taking up farming. These students need to be motivated to take up farming and others to become entrepreneurs in these fields. As mentioned earlier, the quality of agriculture education has been deteriorating because of dearth of qualified academic staff and the



Gujarat saw tremendous growth in agricultural higher education. Before the splitting of GAU into four SAUs in 2004, there were only four colleges in agriculture, one dairy science college, two veterinary science colleges and one home science college. Now, the State has altogether 30 polytechnics and 35 UG colleges and three post-graduate Centres for Education and Research providing education in agriculture, dairy, veterinary and allied sciences with a total intake capacity of 450 PG, 2188 UG and 1140 Diploma students.

In India, there are more than 73 agricultural universities, including Horticulture University, Veterinary Universities, Fisheries University, Deemed University or National Institutes and Central Agricultural Universities. Higher education in agriculture is regulated by the ICAR, but this is not the same as being regulated by the University Grant Commission (UGC) which provides full financial support to Universities for disbursing salaries to staff. The ICAR, through its Deans Committee, develops the syllabus, course curriculum with room to include local subjects. It also sanctions projects for research to different universities; thus ICAR provides support to agricultural universities for education, research and extension.

present curriculum not addressing the needs of the farming community and the demands of agro industries. Rural students are not attracted to the courses because lucrative jobs are not available and graduates are not equipped properly with skills required for agribusiness. State allot meagre funds and impose restrictions on filling up of vacant posts. The ICAR which is the major financing agency for research admits that it spends only 10% grants on education from its budget. The policy paper issued by National Academy of Agricultural Sciences has stated that agricultural education should lay increased emphasis on topics like alternate farming, bio-fertilisers, pressurised irrigation, integrated water management, integrated nutrient management, integrated pest, disease and weed management, resource optimization, post-harvest technology and value addition and marketing.

Agriculture education must focus on the farmer, his requirements and his prosperity along with market-driven courses to meet the challenges of industries, WTO and multinational giants like Monsanto. SAUs should make a paradigm shift in research and bridge the gap between the productivity of Indian farmers and their Chinese, US and

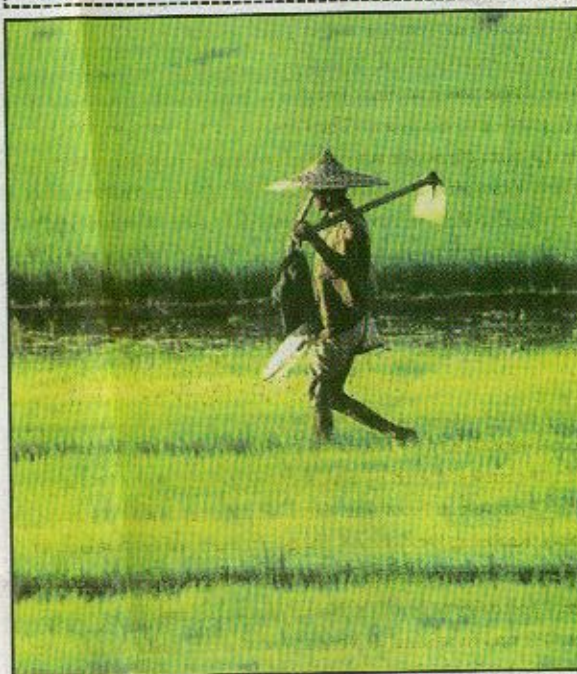
Milestones

Before India won independence there were three agriculture colleges and three veterinary science colleges in the country. The milestones in development of agriculture in India vis-a-vis higher education in agriculture, veterinary and dairy science are given below:

Milestone	Year
Started Department of Agriculture	1871
Agriculture Colleges were established at Kanpur, Nagpur, Pune and Coimbatore	1893-1907
Veterinary Colleges were established in Bombay, Madras and Calcutta	1886-1903
Pusa Institute started	1903
Royal Commission appointed	1926
ICAR constituted	1929

Development of Agricultural Education/Research in India (Post-Independence)

Milestone	Year
First Education Commission appointed	1948
First Indo-American Team on Agriculture Education (Damale Committee) constituted	1955
Second Indo-American Team on Agriculture Education (M.S. Randhwa Committee) constituted	1959
First Agricultural University established	1960
Ralph W. Cummings Committee appointed	1960
Model Act for SAUs drafted by ICAR	1994



other counterparts abroad. In order to open up job opportunities, SAUs should provide regular specialised training to rural youth, develop skills in school dropouts and design a three-tier system of agri education in the state. The following tiers should be adopted.

(i) Secondary school: The state should develop students' skill in rural artisanship, repair of farm implements, tractor, hand pump, preparation of organics like vermicompost and so on.

(ii) After higher secondary: SAUs must prepare graduates in a way that they can guide farmers and act as their consultants, besides being ready to become entrepreneurs and do farming themselves.

(iii) After graduation: SAUs should train Master's and Ph.D. students in cutting-edge technologies which are the need of the hour.

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