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COMMENTS

Teaching of Agricultural Economics in Agricultural Universities in India: A Comment

This is a note inspired by the study of Sidhu and Singh (1990, pp. 31-39) on the above topic. Agricultural economics is one of the most under-developed disciplines in the State Agricultural Universities (SAUs) in India. Hopefully, this study has attracted the attention of Economics Departments in all SAUs. Considering the absence of serious discussion on this subject, one must thank both the Indian Society of Agricultural Economics and the authors for focusing on this topic.

The authors have reviewed the agricultural economics programme in the SAUs. This has been done with a view to 'restructuring the same to provide trained manpower for solving the problems of rural development' (p. 31). Information collected from 22 SAUs through a survey, has been used to evaluate the curriculum of economics in the SAUs. The norms specified by the Indian Council of Agricultural Research (ICAR) for teaching agricultural economics at the various levels (B.Sc., M.Sc. and Ph.D.) form the yardstick against which the information collected is evaluated. The prominent findings of the study are that (*a*) the quantum of intake into the economics discipline is meagre; (*b*) the SAUs have no uniform syllabus or standards of economics education, as revealed by their shortcomings in comparison with the ICAR norms; (*c*) qualifications and specialisations of the staff are inadequate to meet the variety of demands from a growing rural and agricultural sector; and (*d*) the isolation observed among SAUs is largely the result of their inbreeding. Their conclusion spells out measures to counter these defects.

This note is a modest attempt to help generate a constructive dialogue towards improving teaching of agricultural economics in the SAUs. The following section examines the centrality of ICAR norms in the Sidhu and Singh evaluation and is an argument against imposing uniform syllabi in the SAUs, whatever the disciplines may be. In the next two sections we discuss the need for reorientation of agricultural education with a new perspective, and ask for a rigorous programme in agricultural economics at the SAUs.

I

CATERING TO DIVERSITY

The crux of the Sidhu and Singh study is the acknowledgement of the ICAR Expert Committee norms as being *the* ideal for all SAUs to follow. Actual course composition in the SAUs is compared against the normative course load and structure prescribed by the ICAR. Deviations of SAU syllabi from these norms are judged by a mere tallying of course titles with no reference to the details of course content, or for that matter the location and mission of each SAU. Ultimately, the authors recommend that 'uniform syllabi should be followed in the different universities as suggested by the ICAR Panel long back in early eighties' (Sidhu and Singh, 1990, p. 37). The statement is laden with contradictions in itself, and if accepted, could perhaps be a potent threat to agricultural development in the Indian states. Our contention here is that imposing uniformity in *different* SAUs is the one single step that can reaffirm their isolation and virtual ineffectiveness in the agricultural and rural scene of the states.

Let us start with certain suggestions for the improvement of agricultural research and

education made in the early nineties of the last century. Voelcker (1893) draws attention to the most essential feature of Indian agriculture: its complexity and diversity. In an unprecedented classification, made nearly a century ago and yet relevant even to this day, he mentions 'three separate classes' of differences that exist in Indian agriculture:

I. Differences *inherent to the people themselves* as cultivating classes.
II. Differences *arising from purely external surroundings*, and not directly from any want of knowledge. These may be subdivided into: (*a*) physical causes such as climate, soil, facilities for water, manure, wood, grazing, etc.; (*b*) economical or political conditions such as the relative ease or difficulty of living, paucity or pressure of population, etc.
III. Differences *arising directly from want of knowledge* - for instance, the existence of diversity of agricultural practice in different parts of the country (Voelcker, 1893, p. 13).

Today, the significance of this classification is poignant because we know that (I) and most of (II) above have been ignored in the efforts towards the improvement of Indian agriculture.[1] These 'differences' in Indian agriculture have been given due weightage in the recommendations made in 1950 by the University Education Commission (UEC).[2] It describes the Land Grant College System of the U.S.A. as an example of 'what can be accomplished in the development of a democratic system of agricultural education' (UEC, 1962, p. 182). The rural universities in India, the UEC states, must be assured of their autonomy with respect to decisions about curriculum and examinations.[3] The first Joint Indo-American Team hopes that 'University and college autonomy .... would increase substantially in the future' (ICAR, 1955, p. 37). Agricultural colleges then were under general Universities and had far greater differences in curriculum than they do now. Yet the Team cautions that it is quite opposed to 'over-standardisation'. "Agricultural colleges located in the several States of India must have certain differences in curricula; it is better to relate them to their immediate environment. There should be reasonable compromise between the need for standardisation and the need for environmental adaptation" (ICAR, 1955, p. 49).

It is the Second Joint Indo-American Team (ICAR, 1960) that specifically recommends steps to intensify agricultural education in the country.[4] The Team discourages uniformity in syllabi even within a college. It recommends that "....the curricula should be developed by the University staff. Although there should be *some uniformity* of curricula among colleges of the same kind within a state, as well as among Universities in different states, it is hoped that each curriculum will be flexible" (ICAR, 1960, p. 17) (emphasis added). The importance of specialisation and the need for a broad array of quality teaching facilities are embodied in the latter part of the recommendation: "All students within a given discipline should not be required to take the same courses of study. Ample opportunity should be available for students within a college to specialise by electing courses not required of all students. Students in one college should be allowed to register for courses in another college" (ICAR, 1960, p. 17).

This demands a truly democratic education system where each student, college and university is responsible, and has the freedom and opportunity to choose the best. The

uniform and optionless course work in our SAUs gives the students little chance to think about choices. They are denied the opportunity to design their education towards productive and efficient careers.[5] Creating such opportunities can go a long way in producing future generations of socially responsible professionals. But social responsibility in an agricultural graduate is nipped in the bud by the prevailing education system. Respect for hierarchy and central control is fastidiously cultivated. The routine mechanical grind of strictly compartmentalised courses and excessive reliance on internal evaluation have helped to sustain it at the college level. And at the SAU level, funding often comes tied with acceptance of ICAR prescriptions.

The Report of the Review Committee on Agricultural Universities (ICAR, 1978) also recommends a certain degree of autonomy for the SAUs. This is where the ICAR's role as a 'father figure' to dictate terms and direct/advise the SAUs on matters of agricultural education is stated explicitly (ICAR, 1978, see pp. 130-139 for summary and recommendations). But even in this report, the agricultural diversity in the country is recognised as being important in designing a course content for agricultural education. "The areas in which elective programmes need to be offered should be decided by each university in the light of the agricultural situation in the concerned state; the involvement of user organisations in the development of educational programmes should be encouraged" (ICAR, 1978, p. 130).

Why is it that with all these precedents, the ICAR and responsible scientists, like Sidhu and Singh, tend to ignore the importance of an education that can cater to this diversity? Table I gives a basic picture of agriculture as it exists in the Indian states.

It is this most apparent diversity that is ignored when uniform syllabi are recommended for the SAUs. A uniform course content in agricultural economics or any other discipline will be grossly inadequate if the SAUs are committed to agricultural development in the region, as their distinguished models, the Land Grant Colleges are. A basic pool of foundation courses (in theory and quantitative techniques) may be imposed in all agricultural colleges. But the choice of all applied courses and details of the syllabus for each must be left to the discretion of the respective colleges.[6] By suggesting this we may be accused of favouring restrictions in or promoting regionalisation of agricultural science education. In the following sections we shall discuss how a new perspective can save agricultural education from this predicament.

To sum up this line of argument, one must say that the contradiction in the clamour for greater autonomy raised repeatedly by the ICAR for itself and the uniform norms, terms and conditions it seeks to impose on agricultural universities is baffling. We are relieved to notice in the report by Rath that there was serious dissent among academicians when the issue of trying out the ICAR's 'model teaching scheme' was discussed (Rath, 1990, p. 49).

The uniformity in organisation of the ICAR and agricultural universities is already an obstacle as far as catering to the needs of a complex and diverse agricultural system is concerned.[7] Any further attempt at imposing uniformity will certainly stifle whatever little original achievements in teaching and research that are available with the SAUs. Though such achievements have not been uniform, there are several problems that are far from unique. Marginalisation of the social sciences in research and education is a problem common to all SAUs in the country.

TABLE I. AGRICULTURAL DIFFERENCES IN SELECTED STATES: SOME BASIC STATISTICS

(average for the period 1979-80 to 1981-82)

States	Irrigated cropping (GIA/GCA) (per cent)	Cropping intensity (GCA/NSA) (per cent)	Foodgrain area (gross foodgrain area/GCA) (per cent)	Non-food crop area (gross non-food crop area/GCA) (per cent)	Agricultural SDP/ha (SDP in Rs./ha GCA) (average at current prices) (Rs.)
(1)	(2)	(3)	(4)	(5)	(6)
Punjab	87.6	160.8	72.3	25.0	3,057
Tamil Nadu	57.2	121.7	67.1	23.4	2,409
Uttar Pradesh	47.6	141.7	83.4	7.3	2,423
Andhra Pradesh	41.8	115.4	71.3	22.3	2,658
Jammu and Kashmir	38.8	136.1	85.8	8.7	3,672
Bihar	34.3	133.7	89.8	4.6	2,546
West Bengal	23.5	135.3	80.9	13.4	3,810
Gujarat	23.3	111.7	47.5	49.1	2,290
Rajasthan	23.0	116.1	71.0	27.2	1,184
Orissa	20.8	140.7	78.4	10.6	1,954
Assam	19.4	125.7	73.1	17.6	3,492
Karnataka	18.2	107.8	66.8	27.5	2,017
Kerala	17.3	131.7	29.2	38.3	4,436
Maharashtra	13.7	110.4	69.9	26.4	1,837
Madhya Pradesh	12.5	114.4	82.3	16.0	1,198

Source: (*i*) Government of India. *Indian Agricultural Statistics*, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi (relevant years). (*ii*) Government of India (1989).

Note: Column (2) showing the share of gross irrigated area (GIA) in gross cropped area (GCA) is in itself an indicator of the differences in crop production conditions among states. Cropping intensity in column (3) reveals the intensity of use that each unit of net sown area (NSA) is subject to. Besides the irrigation intensity, it is the relative advantage or otherwise of different states by virtue of their location in the wet, semi-arid or arid belts of the country, their corresponding topographical limitations, and their crop base and extent of commercialisation, that influences cropping intensity. The share of gross area under foodgrains and non-food crops in the gross cropped area is self-explanatory. Even a high share of non-food crops in two states, say Gujarat and Kerala, does not hold for comparison in any other respect - see all other columns. While non-food crops are field crops (annuals) in Gujarat, they are garden crops or plantations (perennials) in Kerala. And all accompanying variables like land use, production pattern, production relations, produce and input markets and income are different. The last column covers the whole compass of agricultural production which include livestock and dairying, fisheries and other allied activities.

All figures are normalised by GCA to ensure removal of size differences among states.

II

TOWARDS A NEW PERSPECTIVE ON EDUCATION IN SAUs

A weak social science component is characteristic of the entire agricultural research system (ARS) in the country. Several reports ranging from that of the University Education Commission (1950) to the Report of the Review Committee on ICAR (1988) have either commented upon or recommended steps to strengthen social science research and training in agricultural research stations and colleges. "The most striking difference between the International Agricultural Research Centres and the ARS in India is the strength of the economics programme in the former." Thomas Walker, leader of the Economics Program at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), maintained that in the Institute 'the economics programme is as important as the plant breeding programme' (personal communication, January 1990). There is no single SAU in the country that can make a similar claim.

Though we accepted the Land Grant Model for our agricultural education and research, we lost the opportunity to make the corrections that were made in the system in the U.S.A.[8] Among the changes made in State Universities in the U.S. were strengthening of the social

science component and emphasising the mission of the agricultural university. Busch comments on how in India, 'many SAU faculty members had difficulty in articulating their SAU's mission'. And how this lack of understanding of mission was related to 'an overwhelming curriculum orientation towards production agriculture, with other subjects and issues often viewed as secondary to those of production' (Busch, 1988, p. 49).

The mission of a university and the importance accorded to the social sciences in it are intimately related. An agricultural university will never feel the need for a strong social science component if it has never bothered to identify and follow a mission or purpose. Assuming that our SAUs had, at the time of inception, spelt out their general mission, specific objectives with reference to the teaching function, and specific purpose and orientation for education in each discipline, it would be of little wonder if the same holds to this day.[9] Examining the mission of the University and the role of the teaching function in a changing context is a practice foreign to Indian agricultural universities.

Our SAUs must learn to use the social sciences to define its mission, identify the real problems in agriculture, list its priorities for research, schedule its courses for education, and conduct periodic assessments of its own performance. Agricultural economics, rural sociology, agricultural anthropology, agricultural business/marketing management, and agricultural ethics and politics, have to be developed as full-fledged individual disciplines and as important interdisciplinary complements to each and every scientific research project.[10] Every department in a SAU has to see to it that the social sciences are not used as mere clearance certificates for project feasibility or viability. They should be employed fruitfully from start to finish - in deciding agricultural research and education policy, in priority setting, resource allocation and estimating field demand for each discipline, in designing organisation strategies and personnel management for research and education, so on and so forth.[11] A systems approach in teaching and research must be made mandatory in all SAUs. "The student should get a clear vision of the relationship between agriculture and the basic sciences, between agriculture and the rest of the country's economic life, and between the rural and urban elements of society" (UEC, 1962, p. 200). Here, knowledge of the economic, sociological, political and technological status of the system can be used by the SAUs as the foundation from which a new agricultural order can be built.[12]

This strong social science component in the SAUs may either be built from a new perspective of education or can result in one in which every single discipline and its basic or applied principles are seen as part of one whole agricultural system. A perspective, where every course means something to the soil, the inputs, the crop, the output, the farmer, the agri-business, the environment and the agricultural scientist. Improved teaching of agricultural economics can be a starter to this end.

III

ECONOMICS IN AGRICULTURAL EDUCATION

Economics is not only the weakest component of the curriculum in agriculture, but the faculty strength in this discipline in most agricultural universities is below requirement. The United States Agency for International Development (USAID) impact evaluation of the SAUs states that "the number of vacancies appears especially acute in the veterinary medicine and agricultural economics areas"[13] (Busch, 1988, p. 19). The job of an Assistant Professor in the SAU is perhaps the last in the list of jobs an agricultural economics graduate

would look for.[14] In all other avenues she/he is in the mainstream and is actively involved in the development of the organisation. In an agricultural university, however, the agricultural economics graduate is marginalised, and has to stick to years of teaching (with the same class-notes!) till the promotion arrives and the teaching load is passed on to the next hapless Assistant Professor.[15] Referring to the 'numerous vacant positions' in the departments of veterinary science and agricultural economics, the USAID report says: "In both cases, M.Sc. or even B.Sc. graduates can obtain better paying positions than can new Ph.Ds in these fields. There is a need to increase undergraduate training to meet the demand in these fields" (Busch, 1988, p. 52). And this does concur with the Sidhu and Singh's (1990, p. 36) demand to increase intake capacity. But obviously, an increased intake is of little use if the course content continues to be the same.

Besides increased intake capacity, Sidhu and Singh (1990) recommend several measures to improve the agricultural economics taught at the SAUs. They call for improved quality of teaching, orientation of teaching and research for multidisciplinary programmes, increasing specialisations and creating faculty improvement programmes. We believe that agricultural economics can be used effectively in the undergraduate, graduate and Ph.D. courses to generate high quality manpower for development.

The undergraduate course is the major component of the education function in all SAUs. Present students and qualified students now employed as Agricultural Officers in the Agricultural Departments, agree that there exists an enormous 'isolation distance' between their education and the real problems they face in agriculture.

How can agricultural economics help to bridge this gulf? Well researched courses in agricultural economics *per se* and a couple of 'combination-courses' given by (*a*) Departments of Agronomy, Soil Science, Engineering, Economics and Extension and (*b*) Departments of Entomology, Pathology, Plant Breeding, Economics and Extension, can help. Conducted as workshops, these two courses should be given at the end of the undergraduate programme. In a series of carefully designed workshops the students either individually or in groups should be asked to carve out strategies (including selection of appropriate technological components) for development of micro/regional agricultural systems. This will integrate the gamut of courses they have taken. In the workshops economics must play a lead role by designing sets of *given* variables and *changing* policy elements and prices and consequences of choices made earlier. This will give the students a real test of the practical value or otherwise of four years of agricultural education. Every other participant discipline must also provide sets/ranges of problems and conditions, and technologies including state-of-the-art, from which students are allowed to choose, to design their workable agricultural strategy. Each session must be devised with a clearly specified objective. Such workshops can also be introduced in the improved courses on agricultural development and policy for the undergraduate students. These sessions can focus on agriculture-industry-service sector interlinkages, and examine the consequences of specific technological developments and development policies, like fertiliser subsidy or land reforms.

Such combination-courses and specialisations must be used effectively in agricultural education. Our SAUs need to develop specialisations so as to combat the ever-increasing problems in Indian agriculture. But again, a word of caution: Let us not create new specialisations to fuel our commitment to reductionism. Research and education in agricultural

science must strive to 'arrive at a balance between a holistic and a reductionist approach'[16] (Harwood, 1982, p. 320). What we need is a thorough understanding of our agriculture and its place in the economy. If we end up adding more specialised courses and more disciplines without this, the only accomplishment would be a few more jobs in a few more isolated compartments in an already cut-off island.

As far as agricultural economics courses are concerned, the dissociation between economic theory and practical/applied economics taught and between what is taught and what is needed for Indian agriculture must be removed. For an undergraduate student the basic economic theory course and production economics are perhaps enough exposure to theory. The rest can be gleaned from the electives offered. A minimum requirement may be specified by the department or college in the SAU. But only a scrupulous selection can meet the needs of a graduate student or researcher.

What is the objective in emphasising sound knowledge of economic theory for a graduate student? The obvious answer is that she/he should be able to identify a proper theoretical framework, define the approach/methodology and use the best tools of analysis when confronted with any economic problem that demands a well researched solution. The latest developments in institutional economics probably hold the key to a body of theoretical knowledge that can explain and help modify the agricultural sector in a developing country.[17] Economic theory and quantitative techniques for M.Sc. and Ph.D. courses in the SAUs have to be drawn out after careful and detailed discussions in expert forums where the *mission* of SAUs is clear and given utmost importance. Let us remind ourselves that "the initial issue in solving the food problem combines economic issues with those which are social, moral, spiritual and political. No mere agricultural technician will meet that need. Agricultural statesmanship is necessary, and the training should be commensurate with the issues" (UEC, 1962, p. 196).

Agriculture is perhaps one of the few courses where an admission is a sure ticket to a degree and quick employment for all students. Constructive dialogue towards improving the quality of education imparted in our SAUs and increasing its relevance to the agricultural problems is the need of the hour. Economics can help build relevant courses for agricultural economics and other disciplines by assigning priorities and identifying principles for education that suit the mission of each SAU.

We conclude this note with the fervent hope that a sincere and constructive dialogue towards improving the quality of agricultural education in the country will be taken up earnestly by all concerned; agricultural science students and teachers, agricultural scientists, research and education managers, and administrators.

Rajeswari S.*

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* ICSSR Doctoral Fellow, Centre for Development Studies, Trivandrum.

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NOTES

1. We do hold strong reservations as to the nature of improvements attempted and effected, where those 'differences' that arise from a want of knowledge are concerned. The contribution of scientific investigations in agriculture, to reduce or remove differences attributed to lack of knowledge is yet to be evaluated.

2. Among the concerns expressed by the UEC were the lack of social relevance in the higher education courses and the poor degree of autonomy given to the universities (UEC, 1962).

3. This recommendation was modified in the years that followed, to develop a conforming, homogeneous SAU network. And this was a result of the funding melee in the early sixties with norms spelt out by the USAID. "This represented a refinement of the earlier thinking of the UEC, which had suggested the land-grant philosophy (as opposed to its form) be considered for adoption by India" (Busch, 1988, p. 8). The price paid for this 'refinement', in terms of the demands from the essential diversity of Indian agriculture, is not known.

4. The Second Team sought an education that would enable a graduate to 'render greatest service' to the agricultural economy. For this they had to have "a broad understanding of all phases of agriculture. Therefore, courses in economics, agricultural economics, farm management, and rural sociology should be strengthened in practically all curricula" (ICAR, 1960, p. 17).

5. A good example from agricultural economics course would be a student who has a career planned as an agri-business consultant. Given the choice, she/he could opt for a course in dairy economics or management taught at the local veterinary college. This would give the student a better idea of an integrated farm system and of economics for efficient farm management.

6. See Dongerkery (1967) for a discussion about autonomy of Universities and of Departments within Universities. And UEC (1962, pp. 200-201) for 'considerations in the design and revision of curricula' in agricultural colleges.

7. Organisation is a variable that can decide the effectiveness of any R&D system. Analysis of the organisational dynamics of the research system forms one major component of our thesis on the 'direction and impact of the agricultural research in India'.

8. In 1972 the Government of India decided that the country had had enough help from the U.S. agricultural research and education experts. This break came at a time when the agricultural universities in the U.S.A. were facing criticisms about their research and education strategies and were making corrections (Busch, 1988, pp. 25-26).

9. Though the earlier SAUs have had some amount of planning and identification of mission/purpose, they were done in the early sixties and are certainly outdated in the present agricultural scene. Among the later ones, founded in the seventies, we find weird cases where all it took to 'convert' an agricultural college into a university was a replacement of the name-plate of 'principal' by another saying 'vice-chancellor'. Do they know their mission? Was any planning/priority-setting undertaken?

10. Koppel (1986) considers the absence of ethical responsibility in R & D systems, especially in the agricultural sciences, as the most serious limitation of the research system. The research establishment refuses to acknowledge the fact that it is ethically adrift. The political bases of the agricultural sector and the ARS are not acknowledged either. Importance of political support for and tinkering with the SAUs are discussed in Busch (1988), Singh (1982) and Brass (1982) in the Indian context.

11. See Phillips and Dalrymple (1981) for a range of pertinent questions in agricultural research, addressed by agricultural economists.

12. There is only one article on educational needs 'to meet the agricultural production requirements of the 21st century', included in the 17-piece publication titled Agricultural Research Systems and Management in the 21st century from the NAARM. It is on the U.S. agricultural education needs presented by a scientist from the University of California. Yet it deserves mention here for the listing of 12 areas to be improved in the college curricula for agriculture, and the emphasis on a systems approach, ethical and public policy component, and historical cultural and social dimensions of agriculture [Raman *et al.* (Eds.) (1988), pp. 180-182].

13. A good M.Sc. or Ph.D. student in agricultural economics (their numbers are already quite low) prefers to seek employment in banks, thanks to the good working conditions and pay scales; in the private corporate sector like fertiliser, seed, agro-machinery or marketing firms, where the job satisfaction, working conditions, incentives and pay scales are attractive; in State or Central government departments, or Seed Corporations or Marketing Boards or the like, where job security and a sense of accomplishment work as major attractants; in the Civil Services, Agricultural Research Service or similar prestigious services.

14. In some SAU the post of Junior Assistant Professor also exists.

15. The USAID (Busch, 1988, p. 19) evaluation reports that the teaching load is heaviest on (Junior) Assistant Professors and lowest on full Professors. It also notes that 'faculty tend to rely extensively on class notes rather than on library resources or other reading materials' (p. 58). Though this refers to all disciplines in SAUs, it is true of economics too, especially so in undergraduate teaching.

16. Harwood calls for a holistic agricultural science. He explains 'four major areas of expertise needed to tackle the full range of .... problems of developing agriculture' (Harwood, 1982. pp. 299-322).

17. Bardhan (1989) discusses how the transaction cost and imperfect information approaches have been used in an

institutional economics framework to study key economic development problems. "Institutional economists have applied imperfect information theory rather fruitfully to some major agrarian institutions like sharecropping, interlocking of transactions in labour, credit and land lease, labour tying, credit rationing" and so on.

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Teaching of Agricultural Economics in Agricultural Universities: Reply

Rajeswari in her note questions the centrality of ICAR norms used by us in the evaluation of the teaching of agricultural economics in agricultural universities and discusses the need for reorientation of agricultural education with a new perspective and asks for a rigorous programme in agricultural economics at the State Agricultural Universities (SAUs). The main contention of Rajeswari is that imposing uniformity in different SAUs is the one single step that can reaffirm their isolation and virtual ineffectiveness in the agricultural and rural sector of the states. She seems to be at pains to highlight the complexity and diversity of agriculture. She has quoted the University Education Commission (UEC), ICAR (1955) Report of the Joint Indo-American team on research and education, ICAR Report of the Second Joint Indo-American Team (1960) on agricultural research and education and ICAR (1978) Report of the Review Committee on Agricultural Universities to caution against over-standardisation in the course curricula and argued for certain degree of autonomy for the SAUs. To stress her point, she has even provided a table showing the inter-state differences in different agricultural parameters like the percentage area irrigated, cropping intensity, percentage area under foodgrain/non-foodgrain crops and agricultural state domestic product per hectare. She seems to be baffled by the clamour for greater autonomy and the uniformity of norms, terms and conditions the ICAR seeks to impose on agricultural universities. She concludes this section by saying that uniformity in organisation of the ICAR and agricultural universities is already an obstacle. As far as catering to the needs of a complex and diverse agricultural system is concerned, it is argued that any future attempt in imposing uniformity will certainly stifle whatever little original achievements in teaching and research are available within the SAUs.

The second section underlines the need for reorientation of agricultural education with a new perspective and recommends the adoption of a systems approach in all the SAUs.

The third section focuses on marginalisation of agricultural economics. Rajeswari highlights the isolation and distance between the education imparted to undergraduate students, employed as agricultural officers and the real field problems that face agriculture and suggests a couple of combination courses to be conducted in a series of carefully designed workshops. The students either individually or in groups should be asked to carve out strategies for development of micro/regional agricultural systems. She concludes that constructive dialogue towards improving the quality of education imparted in our SAUs and increasing its relation to agricultural problems is the need of the hour.

In this connection, we would like to observe that the position taken by Rajeswari regarding centrality of ICAR norms is mainly due to her lack of proper understanding of the Land Grant System on which the very concept of agricultural universities is based upon. The curriculum is developed best from the grass roots. The proposal on what is to be taught in a particular course is initiated by the teacher who may teach the course. This is discussed by the members of the faculty of the department concerned with respect to other matter and relevance to the particular needs. The recommendations of the department are grilled in the Board of Studies of the College concerned where the relationship with other courses/programmes and the time that ought to be given to a topic in the context of a total programme, are discussed. The proposals from the Colleges are interlinked and cross checked in the Resident Instruction Committee and then finally discussed in the Academic Council keeping

in view the courses offered for different programmes. Thus emerges the University curricula duly approved which comes into force with immediate effect. This is a dynamic and continuous process, and changes, if thought necessary, are brought about in due course of time keeping in view the feed back and changes that take place in subject-matter of each discipline. Similarly, the research topic for a post-graduate student is decided in consultation with the major advisor, who helps the student to prepare a synopsis. The advisory committee consisting of 5 to 6 members from concerned faculties, critically examines the synopsis which is further commented upon by the synopsis approval committee at the University level. The student also gives an open seminar on his research topic and invites suggestions for improvements. The basic purpose of the ICAR Expert Committee on teaching of agricultural economics was to recommend a basic minimum of core courses at undergraduate and postgraduate levels along with a set of elective courses for students majoring in economics at the undergraduate level and supporting courses according to the field of specialisation of the students at the Master's and Ph.D. levels plus minor courses in related fields as suggested by the individual Student's Advisory Committee. The ICAR panel circulated the outlines of the suggested courses to all the agricultural universities for their adoption with any modification of details as deemed fit by the Board of Studies and Academic Councils of the different SAUs.

In the light of the above we feel that a certain minimum of uniform syllabi need to be followed by all the SAUs in the interest of maintaining certain standards and to narrow the gap between new and old/advanced agricultural universities. There is a built-in flexibility in teaching and research which automatically takes care of region specificity. As for example, while teaching a course on production economics, the teacher might use data on apples in Himachal Pradesh or Jammu and Kashmir but the types of production functions to be tried remain the same as these are universal. Similarly, while offering courses in agricultural marketing or agricultural finance, the local situation could be analysed and examples cited from the relevant researches. As regards the strengthening of the social sciences like agricultural economics, rural sociology, agricultural anthropology, agricultural business/marketing management and agricultural ethics and politics, these need to be developed as full-fledged individual disciplines and as important inter-disciplinary complements to each and every scientific research project.

Coming to the mismatch between the education and the real problems faced in agriculture, we had already highlighted that the students specialising in farm management are to be prepared to do a better job of managing their own farms, managing farms for others as farm planners, appraisers and consultants or serving as advisors to many service industries related to farming or for taking up teaching and research assignments in universities and other institutions. Similarly, students specialising in marketing are to be prepared to be better private entrepreneurs, manage central and state marketing organisations and to take up teaching and research assignments in agricultural universities, marketing boards, marketing federations and other organisations. The students specialising in agricultural finance need to be made familiar with the latest techniques in evaluating the expanding financial needs of the farmers and their business.

Thus, on the whole, in response to our article, a constructive dialogue no doubt has been initiated: but this stems unfortunately from an inadequate understanding of the concept of

Land Grant System on which the SAUs are founded. As regards Rajeswari's plea for agricultural education with a new perspective and her concern for marginalisation of agricultural economics, there should be no dispute and agricultural economists should establish the usefulness, credibility and relevance of their discipline for policy making.

D.S. Sidhu and A.J. Singh*

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* Dean, Postgraduate Studies and Senior Economist, Department of Economics and Sociology, Punjab Agricultural University, Ludhiana, respectively.