Summary & Recommendations

The Researcher has taken the topic of Financial investments on agricultural education to study the agricultural education system in India, institutions involved in agricultural education and the outlays incurred and the sanctions accorded by the state/central governments, the impact of these investments and the cost of the production of the output of these institutions in the states concerned. For this study purpose the researcher has set some objectives given as under:

1. To study the trends in Agricultural Education and Research.
2. To study the investment pattern in Indian Agricultural Education and Research.
3. To find out the influence of various factors on the financial investment in Agricultural Education and Research.
4. To analyze the impact and financial investments on Agricultural Human Resource.
5. To suggest the tools/methods to make the financial investments more viable and result-oriented on the basis of analyses and results of the study.

Besides pursuing the objectives the researcher has dealt the scenario of agriculture, agriculture investments, institutions, present issues, historic perspective, linkages among the institutions, SAUs development, role of ICAR, new initiatives, distance education, vocationalisation, economic inequities, inter university movements, international agriculture and women in agricultural education, quality and improving quality of agricultural education etc. The research methodology has also been explained in chapter 1. While dealing the different concepts pertaining the present study, the researcher has extensively referred the literature available on the topic. The researcher
has also consulted several books, references, bulletins, journals, reports and special task forces recommendations, high power committees recommendations, several publications of the universities, Indian Council of Agricultural Research, Data Books, Budget Books, Abstracts and Seminar, symposia proceedings of national and international level. After thorough investigation of the literature available the researcher has formulated the data of different universities pertaining to the financial investments as exhibited at chapter – IV & V. While formulating the data the researcher has studied into of the present agricultural education system, curriculum and various disciplines and the students enrollments etc. After through study of all these aspects various data formulated has been displayed in tables/ statements, bar / pie diagrams, graphs and the same have been analyzed through the applicable statistical techniques to find out the significance of the data's formulated. After analyzing the data various results were obtained. These results in summary form are given below.

**Main Findings:**

1. The allocation for agricultural education by ICAR in its budget has been made plan wise in a fluctuating manner. In fourth five-year plan the allocation to the agricultural education was 34.6% that declined to 11.7% in eight-plan period. The allocation for agricultural education (given in Exhibit I and Table 4.1)

2. It was also analysed that to what extent the states along with ICAR contribute in the investments on agricultural education through SAUs. It was found that the states have been contributing more than 74% and the ICAR 16.3% in this area (Table - 4.2.).

3. The grants are provided by the central government to ICAR for the purpose of various purposes for enhancing and growing the agricultural education in the country through universities and research programmes. It was found that the grant is being given under two heads non-plan and plan. The actual expenditure in all the years under both the heads of the grants has been higher than the
budget estimates. It is an indication that the agricultural education and its development are being taken care of seriously by the government as well as its apex body known as Indian Council of Agricultural Research. The data relating to the grants are given and analysed in Table 4.2.

4. The Government allocates the huge amounts to the agriculture Research and education every year under two heads viz., plan and non-plan budget allocations. Every year, this allocation increased by huge amounts. It may be inferred that the investments in research programmes have been made by taking the cognizance of relevance of research in developing the agriculture as well as agricultural education. (Table 4.4 depicts the data of allocation.)

5. The SAUs impart the agricultural education in the areas of agriculture and agriculture like areas. The education is given in the form of graduates, postgraduates and research (PhDs). In India, there are 172 colleges imparting agriculture education with heavy financial investments every year. The maximum colleges are in the stream of agriculture (i.e. 61). The information pertaining colleges, disciplines and their respective intakes have been given in Table 4.5.

6. It was found that there was non-significant difference between the allocation of budgeted investments and actual expenditure (The variance analysis given in Table – 5.18)

7. To analyse the average cost per state on agriculture education, the statistical technique of linear regression has been applied for the relations between the variables. The results revealed that per state average annual per student whether there is enrollment or not expenditure on agriculture education is amounting to Rs. 2119.3 lakhs as a fixed component of the investment i.e., this cost has to be incurred irrespective of the enrollment of the students. On enrollment of the students the per student annual cost will be Rs.4.86 lakhs. Detailed statewise cost per student has been indicated in Chapter 5(Table 5.20).
8. Amongst the states Maharashtra has received the highest allocation with 13.43% of the total investment on agriculture education by the SAUs and the central university, followed by Madhya Pradesh that stands at the second position that has received 9.21% of the total allocation for these states. Uttar Pradesh has received 8.09%. The lowest 0.58% allocated state is Manipur where one central agricultural university having jurisdiction over the North Eastern states.

9. Though some states are small with population, they have got a better share of its total allocations. For example in, Punjab the population is only 2.4%, of the total Indian population but the agriculture education allocations account for 7.2% of the national total. In a much bigger states i.e. U.P., though the population accounts 17.04%, allocations account for only 8.09% and expenditure is 7.18% of the national total. In Himachal Pradesh population accounts for only 2.05%, as against the allocation 3.38% and the expenditure of 3.32% of the national total. The state of Maharashtra occupies position (as No.1) followed by Madhya Pradesh and Tamilnadu holding 3rd position. So far as allocations are concerned UP is in the 3rd position with 8.09% of the national total. But expenditure Tamilnadu occupies the 3rd position. From this analysis it appears that in the state of UP has not in a position to spend even the allotted amounts. In Manipur's Central University located specifically to empower the area of the North eastern states with a strong agriculture base, the expenditure account for only 0.5% of the national total and hence this state deserves better allocation in the future. Though this Central University has been established recently, in Manipur the allocated amounts are being spent on 7 N.E.Hill states. The responsibility of this University in developing these seven states for a stronger base in agriculture is really a Herculean task because of the lack of a good industrial base.

10. Similarly the J&K State expenditure as well as allocation has been remaining very low. Recently, one more university for agricultural education has been established in the state and hence the allocations and expenditures are expected to go up.
soon. Both the N.E.Hill states and J & K state are trouble torn and hence need to be supported on the priority for the development of the stronger agricultural base to attract to youth to the farming sector.

11. So far as the human population of the 18 states, where agricultural education is being imparted through the SAUs, is concerned, UP has the highest population of 175052859. However, the expenditure on agriculture education in this state is only 7.18% of the national level, which is extremely low. UP is a strong agricultural state, which deserves a good share of the total national expenditure on viz agriculture education. Although UP is first in its population holds only the 6th position in its expenditure on agriculture education.

12. Though Maharashtra, population accounts for 9.42% i.e. 96752247 of the Indian total, the expenditure on agriculture education has been 13.79% i.e. about 14% of the national level. This figure certainly indicates a gross imbalance and inequity in allocation amongst the states. Maharashtra is already an industrially developed state. It is necessary to justify the highest allocation to Maharastra from the perspective of her contribution to the national agricultural production and productivity.

13. The Punjab, which is quite advanced in agriculture, is spending about 7.2% of the total investment on agriculture education by the SAUs and the Central University. Against the population of 2.36% in this state, in the investment of 7.25% in agricultural education needs to justified and corrected. While the population accounts for 8.06% of the national total in Bihar, her expenditure share on agricultural education is only 3.48% of the national total and hence Bihar deserves much higher allocation. Andhra Pradesh, and Assam with the population's of 7.37% and 2.59% respectively of the all India level incur expenditure of 7.46% and 2.78% respectively of the national total investment on
agriculture education, thus exhibiting a matching status between the population and investment.

14. Gujarat with a population accounting for 4.92% of the all India total as against this it incurred an expenditure of 7.09% of the total. Obviously there is a mismatch between the population size and allocation. Haryana where the population is only 2.05% of the countries total incurs an expenditure of 6.03% of the national total. Investment on agricultural education indicates the mismatch between the two variables as in Gujarat. Himachal Pradesh, also such mismatch is seen inhere Population is only 0.6% of the all India population but the agriculture education expenditure is 3.23% of the total national investment on agriculture education. In Jammu & Kashmir there the population is less than 1%, of the all India total the expenditure on agriculture like education amounts to 1.7%, of the national total. However this apparent mismatch justified reasons and various location disadvantageous like the cold climate and mountains and for the strategic reasons.

15. There is rather a good match between population size (5.13% of total) and agriculture education investment (6.34% of total) in Karnataka, so also in Kerala with a population size of 3.1% of national total against an expenditure of 4.4% of total investment on agriculture education.

16. Amongst the agricultural education imparting states, maximum numbers of students are being produced in Maharashtra. Out of the total students of 16233 being produced annually by the SAUs, 3028 are accounted for by Maharashtra alone, amounting to 18.65% of the national total. Tamilnadu comes next with 1600 students per year accounting for 9.86% of the national total. Andhra Pradesh is in the third position with 1488 students per year constituting 9.17% of the national total. Karnataka that ranks fourth produces 1412 students who form 8.70% of the all India Total. The
8.70% of the all India Total. The following tale indicates the number of students being produced in each state.

17. Out of the total 16233 students being produced by the SAUs annually West Bengal accounts for only for 3.17% (514 students), which is much smaller, compared to her population size. Therefore current low allocation on agricultural education in this state needs to be increased significantly.

18. Bihar produces only 601 candidates agricultural annually against her population of 82878796, which forms 8.06% of the All India population. The expenditure of only 3.86% of the total national investment on agriculture education in Bihar is too low for this backward state without much industrial development and great dependant on agriculture. Bihar employs only 1 or 2 agriculturally qualified skilled manpower for 100 villages. Hence significant increase in the agriculturally qualified manpower in is an urgent priority for this state.

Rajasthan produces 6.18% (1004) of the total agricultural graduates whereas her population forms 5.49% of all India total.

Andhra Pradesh produces 1488 students accounting for 9.17% of total against her population size of 7.3% of the national population and the expenditure of 7.46% of the national total investment in agricultural education. Thus the mismatch between the agricultural students produced and the population size is marginal.

Madhya Pradesh has a population of 9.4% of the country's total whereas her production of students is 959 accounts to 5.91% of total, indicating need for more number of the students, to meet the states requirement. Madhya Pradesh is incurring expenditure of 10.01% of the total amount spent on agricultural education.

Karnataka produces 1412 students accounting to 8.76% against the population 5.16% of national total. Obviously Karnataka produces more.
Uttar Pradesh produces 1327 students constituting 8.17% of the total national production of 16223. The UP population of 1750552859 forms 17.04% of the India level. This paradox needs immediate attention and correction. The state has a strong agricultural base, which requires strong agriculturally qualified skilled manpower.

Haryana produces 678 agricultural students (5.46%) of All India for her population of 21082989, which accounts for 2.05% of the national population. The expenditure is on agriculture education forms 7.09% of the total investment on agriculture education.

Manipur, where the Central Agricultural University has been established is able to produce only 117 students per year. This university has to fulfill the requirements of 7 other states of the North Eastern regions. This production is dismal comparing with the requirements of these states. Hence special attention has to be paid.

19. Gujarat incurs Rs.12.26 lakhs per student per year which is the highest for the country, followed by Madhya Pradesh (12.23). Punjab incurs (Rs.11.58 Lakhs per year per student) is in the third place. Followed by Himachal Pradesh (10.84 Lakhs per year per student). Assam (10.39 Lakhs per year per student. Among the rest of the states the cost ranges from 5 lakhs to 9 lakhs Lakhs per year per student. The costs in the SAU system comprise establishment charges, consumables and major repairs. The establishment charges are almost fixed though variable over the period of time. These costs have to be necessarily incurred irrespective of the number of students produced as the salaries and other establishment charges cannot be reduced. Similarly if a class comprises of 10 students or 20 students, the cost of the teacher remains the same. With the increased number of students the marginal cost of a student may not be much (i.e.) the relation between the increased number of students and increased amounts of cost. The very high cost of producing agricultural manpower could be optimized in the Gujarat, Madhya Pradesh and Punjab through proper evaluation management strategies. The high cost per student for a particular university is indicates certain deficiencies in strategic planning which can be surmounted. One such strategy is to admit more number of Students so that the cost per students would automatically.
reduce. The overall cost also would come down. The establishment charges, which are only partly variable, cannot be reduced within a fixed time. The other alternative to reduce cost is to optimize the utilization of the manpower already employed by not filling the surplus vacancies occurring due to retirement, resignation and dismissal / death. Without these measures the amazing costs per student in Gujarat, Madhya Pradesh, Punjab etc cannot be brought down.

20. The human Population (human capital) is distributed amongst the different states asymmetrically, commensurate with the population distribution, the requirement of the state’s agriculturally qualified / skilled manpower is also considerably different.

Recommendations

The recommendations that emerge from the above-mentioned results may be made to the concerned stakeholders in the area of investments in agricultural education and its effective management to make the agricultural education more need based, equitable and fruitful.

- The existing pattern of producing of Agricultural students in different states needs immediate correction.

- States like Maharashtra and Punjab are producing more students than their actual requirements based on population size and Geographical area. This situation calls for immediate correction by the planners/ policymakers/ administrators.

- States like UP, Bihar and the North Eastern Hill states produced much less students than their requirements based on population size and geographical parameters. This situation needs immediate correction by the planners/ policymakers/ administrators.
With reference to the allocations the study depicts a distorted picture. Some states have been given excessive allocations while the other states have been given lesser allocations. The budgets are prepared and sanctioned by the concerned state governments independently without much control coordination by the agencies like Ministry of agriculture and ICAR and without any reference what the other states Governments do in their allotments. Thus the variation from one state to other state is a quite conspicuous. Since there is no coordination amongst the states. It is suggested that the state allocation to their SAUs need to be coordinated centrally by establishing a regulatory body so that these distortions could be avoided. For this purpose all the state cold transmit their budget allotments to the central coordinating agency which would regulate the budgetary flow to the SAUs in a uniform manner. The necessary accounts can be adjusted with the state governments through the books of the government of India.

The patterns of expenditure in the SAUs differ from state to state so also the regulations governing allocation and expenditure. This situation results in either high or low allocation and expenditure by the SAU's in the states. Therefore it is necessary to frame guidelines for all then SAU's so that periodic monitoring and reviews on expenditure could make easy and effective.

Per capita expenditure on agriculture education is only Rs.10 / - Even with this meager amount agricultural sector achieved substantially. Further increase in per capita expenditure would definitely lead to the grater production and productivity. Hence It is desirable to hence the per capita allocation for agriculture education.
The production of the students also needs to be regulated / rationalized keeping in view the state's needs with special reference to its (agricultural and industrial status. For Example, states like UP and Bihar need in increasing number of students and higher allocation while states like Maharashtra and Punjab needs to regulate the number of students produced.

So far as the NEH Region is concerned special emphasis is being accorded. Though there is a central university it is yet to attain its full functionality and potential responsibility for all the North Eastern Hill states. More allocations need to be made. All barriers impending expenditure need to be removed to enable smooth functioning of the university. These states in this region are backward with poor industrial and farm development. Youth get diverted to detrimental activities for want of gainful employment. The only viable alternative is agriculture to attract and rehabilitate them.

Further Scope for the Research:

Though this study has revealed several important aspects with reference to the budgetary allocations, expenditure, state wise inequalities, cost of the production and also the size of the population with reference to the geographical/ climatic conditions. This study has covered the overall picture of the agricultural education. There is a ample scope for further study of on each university with reference to its location the support from the government, annual intake, number of courses offered, discipline wise, strength of the teaching & non teaching staff, area of the land & buildings and other infrastructure, extant of the university coverage, the cost of inputs with reference to the output, the requirements of the state, and the grants from the government of India and the feasibility to have uniform system of agricultural education.