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Focus on farmer-specific issues, and solve them within a time frame, says Union Minister for Agriculture

I warmly welcome all the eminent scientists who have gathered today for this brain-storming session. The problems of agriculture in India at a macro level are pretty well-known: depleting water resources, soil degradation, inadequate seed replacement rate, increasing incidence of the disease and pests, imbalanced use of fertilizers, and shortage of fertilizers as well, and now the climate change. Today's meeting is not to discuss or talk about these macro issues. Today's discussions should be more focused on specific problems, and what we are going to do with them, and in what time frame? For example, *Bt* cotton, seemed to have solved the problem of cotton farmers in India. But I am told that the *Bt* cotton varieties now being used are no longer resistant to Bollworm. Therefore, the question that naturally arises is what are we going to replace it with, how quickly, and how well prepared we are today to do so? Similarly, to take another example, in Maharashtra there is increasing problem of blight in pomegranate. Are we working on this problem? Do we see any solution? Are we capable of finding solution? And if so, what is the likely time frame in which the problem can be fixed?

While it is appreciated that research, specially agricultural research, is time-consuming and no strict time table can be set for the outcomes, still everything cannot be left open-ended only on this ground, because the farmer needs to earn a living today, and we need foodgrains, vegetables and fruits for our growing population now, not at some indeterminate point of time in future.

Therefore, some urgency in our work, keeping in mind a certain time frame is absolutely essential. It is for this reason, that we have introduced the ICAR Challenge Award. Though it has been in existence only for a year, I am disappointed to see that there is not a single claimant for this award, while other awards, including the newly instituted awards which are not so output specific in nature, have all been taken, almost without exception.

In a sense, today's meeting is a meeting to identify the specific and major challenges of Indian agriculture and to hear from you about our preparedness, and about our medium-term output programme to meet these



challenges. I want to hear from you, our most outstanding scientists, about how we propose to fix these problems, whether they be of diseases or of falling productivity levels, or of terminal heat, and your ideas on what time-specific targets we should set. Solutions are to be found for identified problems well in time, and in future we have a system of both quickly identifying a problem, and then working on it industriously, to find solutions as quickly as possible.

I would like to start the ball rolling by stating some of the problems which keep coming to my mind.

Firstly, it is water shortage. It is said that approximately 15 billion cubic metres of water is permanently lost from the Indo-Gangetic plains alone. I have repeatedly heard in conferences and speeches that we have improved technologies for conservation agriculture. Yet, when I go to the fields, I find that water is being used in the same old fashion, and there is hardly any adoption of such technologies that we might have. If technology is not adopted by farmer, is it a good technology? Or is it only theoretically applicable technology? From my long experience I can tell you that really good technologies require very little extension effort, if at all, and therefore, if our conservation technologies have not been adopted by farmers widely then we have to look closely at our technology, and see what improvements are required in these technologies so that farmers adopt them widely. In the very near future, we have to start hearing that permanent loss of water from the Indo-Gangetic plains has

reduced from 15 billion cubic metres to, say, 10 billion cubic metres. That will be ICAR's success, that will be our success.

Secondly, reports are being received about increasing incidence of rust in wheat. I would like to know what is the extent of the problem, and if it is not already widespread, then how are we going to stop this problem from becoming widespread? And, if the problem is already widespread, then what efforts we made in the recent past to halt this problem, and what is our programme now? Are there signs that this might be UG99, as I am beginning to hear? What can we do to eradicate this problem from Indian wheat?

Thirdly, it is also now widely known that productivity increases are tapering off in respect of foodgrains, except in the case of maize. A future where population grows, but productivity does not, is a future of great concern. What are we doing, and what can we do, to ensure that in the next 3, or 5, or even 7 years, we get significant productivity breakthroughs in both wheat and rice, as well as in smaller millets.

Fourth, maize is becoming the crop of hope in many areas, but here too farmers are complaining that fodder from this new variety of maize is difficult for cattle to digest. What is the problem here? And what can possibly be the solution? I can tell you that shortage of cattle feed is going to become a very major problem in India; so this kind of feedback needs urgent attention. Also, as you all know, after harvesting of rice in many areas, the land is left fallow. Are we encouraging *kharif* maize in such fallow lands? Can we do so? Of the total land left fallow, what percentage is currently growing *kharif* maize? And what can we do to significantly increase this percentage? Do we have good enough seed varieties, and enough quantities of them, to increase *kharif* maize production significantly?

Fifth, in rice, in eastern region, there is late sowing, leading to low productivity levels. Why is this late sowing taking place? And what can be done to correct it? What technologies, if any, do we have in place, and to what extent have they been adopted? What is our current work programme to find varieties for the eastern region, which could be sown in time, as eastern region is the area of focus for the next green revolution? Can we encourage dry seeding in the region, and do we have the technology to do so?

Sixth, pulses are largely grown in intercropping systems along with cereals, and with horticultural crops, and this creates a lot of issues of weed management. Do we have the machines, or the molecules, to handle such weeds? If so, how widespread is the use of our technology?

Seventh, there is increasing talk of climate change, which has justified our own NICRA programme. Are we



doing enough to meet this challenge of climate change? Are we using our National Bureaus to test the stored varieties for identifying traits that are, for example, heat resistant? Have we started scientific work such as allele mining, of which we have been talking about since the XI Plan? It seems that both the FAO and some independent think-tanks have published studies predicting substantial adverse impact of climate change on wheat area in India. Have we seen these reports and studied them closely? Are we prepared for such an eventuality?

Friends, these are some of the illustrative issues which came to my mind. As experts, I have no doubt you know much more, and that your knowledge is much more in depth. I would like today's discussion to be very focused: state a specific issue or a problem, and give a specific suggestion on how to handle it, perhaps with an indication of some time frame, and some broad budgetary requirements.

I want to hear scientific constraints that you face. Please do not harp on budgetary or manpower shortages—no organisation in the world has unlimited budgets, or unlimited access to manpower. Rather, world over, research grants are never guaranteed, as ICAR's budget is, and have to be obtained based on output-based commitments. We have to do what we have to do given our constraints; if budget or manpower resources are limited, let us stop trying to do all things, let us not open new institutions, let us in fact close some old institutions and projects which are not relevant, or have not delivered, and let us identify the 30 or 40 priority areas that we have to attend to, and let us attend to them within our budget.

I look forward to hearing from you.

Dear All
please submit topical news related to agriculture to:
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