Session 4 General Discussion

Chairman Dr. Kazunobu Toriyama: We now have 20 minutes for discussion. Will those with comments or questions please come to the front.

We covered a number of topics today, including insects, of course, but also rice plants, monitoring, and the use of models for predictions. In addition, some of our presenters are working to develop effective measures for disaster prevention. With all that in mind, I call now for comments and questions from the floor. If you are asking a question, please state clearly the name of person to whom it is addressed. The floor is now open.

Dr. Shirokova: I have one question to Dr. Babah. Which kind of indicator do you do control, and which kind of instrument do you usually use?

Dr. Ebbe: Thank you. We have a threshold for intervention. Normally it is 500 individuals per hectare. But the intervention to control itself depends on many other aspects like vegetation or if you are coming out of a recession period or out of an invasion period. The instruments we use for control are unfortunately still mostly chemicals, but we are trying to develop bio-pesticides as much as possible.

Chairman: Thank you very much. Yes, the next question, please.

Unidentified Speaker: I have a question for Dr. Kanda. Thank you very much for that very interesting presentation. Access to the system is only by membership. You told is that farmers can access free of charge if they become a member. Is there a system to improve awareness amongst the farmers towards this system? How do you make the farmers become aware of the existence of the system, and how do you invite them to membership? What are the measures taken?

Dr. Kanda: When we had the previous system, when we receive enquiries by email we included them and increased thereafter. My co-researcher is also disseminating such information in citizens' forums. By so doing we are trying to promote interest in our system. We also conducted a press conference at our workplace so that it is covered in the newspaper. So steadfast efforts are being employed.

Chairman: Any other questions? Yes, please.

Ms. Shahanaz, Student, University of Tsukuba: Thank you for the opportunity. My name is Shahanaz and I am a student of the University of Tsukuba. Actually I am interested in Dr. Matsumura's presentation where you tried to look for the historical pattern of distribution of rice planthoppers. I am interested in the slide in which you mentioned backward trajectory analysis. It is interesting because I think the tools can also be applied to other than your field, such as in my field—I study in agricultural economics—so whether it can be used for other applications in data mining human behavior or not. That is the first question.

The second question is in the backward trajectory analysis is there any rate of reclassification when in the results you try to classify whether the rice planthoppers came from? That is all, thank you.

Dr. Matsumura: I am not sure about human behavior, but we are now trying to apply migration simulation to other insect pests, and also to some plant pathogens and diseases. But I am not sure how we could use back-trajectory analysis on human behavior.

What was the second question?

Ms. Shahanaz: Are there any tools to measure how powerful your tools are? Is there any rate of misclassification? You know that in the research you tried to classify whether the hopper is from East Asia or northern Vietnam or southern Vietnam.

Dr. Matsumura: We tested the accuracy of the simulation model using actual trap-catch data. The overall hit ratio of this model was 84%. This was almost the same as the hit ratio for rainfall forecasts by the Japanese Meteorological Agency.

Ms. Shahanaz: Okay. Perhaps later we can discuss personally.

Chairman: Thank you. Are there any other questions or comments? Yes, please.

Mr. Barry: My name is Barry from Utsunomiya University. My question I want to ask to Dr. Matsumura about his insect-monitoring system. As he mentioned in his presentation, those three hoppers have different kinds of overwintering systems. I would like to know for example the first two hoppers, which are only specialized on rice, at which stage they overwinter. That is my first question.

Dr. Matsumura: They can overwinter at any stage, as long as the rice is there.

Mr. Barry: Okay. My second question is which measures do you propose to overcome the pesticide resistance?

Dr. Matsumura: Planting rice varieties that are resistant to planthoppers is a good way to decrease the population density of planthoppers. And rotating several insecticides is effective in reducing planthoppers' resistance levels.

Mr. Barry: Okay, thank you very much.

Chairman: Regarding insecticides, desert locusts are also controlled by insecticides, and you said that you take precautions against negative environmental effects. How do you use insecticides? Are there any alternative control measures against locust propagation?

Dr. Ebbe: Yes, what we try to use is first there is a filter. In the FAO they evaluate the pesticides and they make a list of the less aggressive or harmful pesticides. We choose our pesticide from that list. Second, we have a regional pesticides registration system involving all the sahelian countries. Third, we are trying to improve the percentage of users of bio-pesticide, which is actually called Green Muscle, metarhizium acridum. It is a pathogen. It is now produced in the region in Senegal. It is slow acting, in terms of days or a week. When locusts come to the farm they do not wait seven days; the farmers want to see locusts killed immediately. So it can be used only in sensitive or pastoral areas. It also still has some constraints to pests: it is susceptible to high temperature; it can support only 40 degrees while the temperature is very often 50 degrees in the summer. So we can only use it in winter or spring time.

We also use old methods in some places such as mechanical for hopper band by burying them, particularly in highly ecologically sensitive areas where we cannot use any product. The best as I said is to intervene as early as possible to avoid the problem spreading and being in need of massive pesticide quantities. Early action is the best method as an integrated pest management method for these pests.

Chairman: Thank you. So, as early as possible is important, right? Yes.

We still have five minutes or so. Yes, please.

Unidentified Speaker: Thank you very much. My question is to Dr. Kanda, regarding your cold-tolerant rice.

You mentioned in your presentation that early forecasting of cold weather is good for saving crops, and farmers are getting the benefit of that. So my question is how? Is there any management system? Because if there is a early forecasting that low temperatures are coming, how do farmers save their crops—by irrigation systems or some other management?

Dr. Kanda: Deep water management will be required to avoid cool weather damage, as the water is going to be a warmer temperature. That is how you can protect the crops. Also, the rice blast disease is going to be very important. This occurs in low temperatures and prevention measures can be taken against rice blast disease.

Unidentified Speaker: What is the critical level for a variety here, especially the japonica type? And what is the critical stage? Is it penicillin insulation or agronomic penicillin insulation? And what is the critical temperature with respect to the difference?

Dr. Kanda: In terms of cool weather damage the critical temperature is 20 degrees Celsius. It could be lower if it is resistant to cool weather, but the benchmark is 20 degrees Celsius.

Regarding the cultivation stage, when the pollen is created is the most important stage.

Unidentified Speaker: Day and night wind temperature?

Dr. Kanda: Yes, this is the average temperature for the day.

Dr. Biswas: Thank you Dr. Masaya Matsumura for your nice presentation. I have just come to know that BPH (Brown Plant Hopper) could migrate from one country to the other even across the sea. Anyway, we are having the BPH related problem in Bangladesh too. We have some studies at BRRI (Bangladesh Rice Research Institute) also. Most probably, BRRI Entomologists have recognized several biotypes of this insect. They have identified a smaller type of BPH as well. Therefore, I was expecting some references from my country too. Could you include our BPH problem in your future research work?

Dr. Matsumura: Yes, I know that this problem has also occurred in Bangladesh, and in India. In light of this, we can see the importance of collaborating all across Asia.

Dr. Biswas: Our farmers even the extension works are not much aware about Hopper burn-a typical damage symptom occurred due to BPH infestation. The insects suck juice from the bottom level of the plant. Therefore, the farmers could not recognize the symptom ahead of the occurrence of the damage. The problem is getting worse day by day. So, may I solicit your cooperation in this respect! Thank you.

Chairman: Thank you very much. This discussion is now moving along quite nicely; unfortunately, I have to wrap things up. But before we end, I would like to say that an early warning system is very important for preventing disaster. However, even with all the warnings in the world, if we do not have the proper tools to counter the event in question, we cannot do anything about it. So I hope we will see the development of tools for effective control in the near future, from you and from other collaborators.

Thank you very much. And one last time, let's give all of our participants a big round of applause.