

ATSAF - CGIAR++ Junior Scientists Program

Final Report

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Final Report

How did it start?

Let me start with saying it was a 'quite a journey'...

I'm not writing this report in a traditional way of report writing, but rather writing it interestingly in my opinion. People say, even a long journey starts with one step. Likewise, all it was started with one mail. When I first decided to write a mail to Dr. Susanne Dreisigacker (Supervisor at CIMMYT), head of molecular breeding at CIMMYT, Mexico. I used to check my mail inbox, as frequent as I breathe. I know it is exaggerated, but it is what it is. Days passed by and after a month, it was one thick winter night, and almost one hour past midnight. God knows how tired I was from my part-time work. After work, I reached room and 1. Opened the door, 2. Hanged my jacket, 3. Just laid on my bed. THAT'S IT!

Do you feel this too? When you just laid in the bed, out of the blue, your mind goes from relaxing mode to thinking about something. It might be important to you at that moment. The same happened to me, too! I just opened my mailbox, hoping I would have a reply from Dr. Dreisigacker at least tonight. Guess, what? BOOM...BOOM... I got a mail from Dr. Dreisigacker. Hurray!

From then, we discussed what am I interested in? How would my interest fit in with her lab? What we can do as a master project? Etc. Though Dr. Dreisigacker is kind enough to say that she can fund me for my thesis, thanks to Prof. Nils Stein (Supervisor at Uni), he informed about the ATSAF. It was in 2019, one day, after his class, I don't know why it is me? But he called me and gave a printed paper. It was an advertisement about an open position for master thesis at the ICARDA with the ATSAF. But I was just in the 1st semester, I have no clue about what I want to do in my thesis. Wait...wait..., but why did he give it to me? May be because I was asking the interesting questions and very interactive in class? Tang!! Sorry, it was the bell in my mind, it just reminds me sometimes when I think too much, and helps me to come back to reality. So, the conclusion was I may be just a random pick, he might have a train in next 20 minutes, that he had to leave right that moment to catch that, and he has to pass the information as well. So, maybe it was lucky me! That day. Whatsoever, you got the point. Prof. Stein is the one who introduced me to the ATSAF. But it really came to help in 2022. So, Dr. Dreisigacker and I came to a decision on a topic of interest to work on, and planned to write a proposal to ATSAF. Lucky me again! I got accepted by the ATSAF.

How did I land in Mexico?

People say... First impression is the best impression.

I think, not always. Because, after a long journey of 13-hours flight, I arrived at Mexico airport at 3AM. Thanks to CIMMYT, and Dr. Dreisigacker, they sent me a vehicle to the airport to pick me up. All good, I put the luggage in the car dickie and I get into the car. The journey started to CIMMYT from the airport. After 20 minutes of ride, at a four-road junction, we started hearing the police siren!! I was like - no way, not NOW. They pulled us over on the side of a road, and the driver goes on saying - hello officer, how can I help you? Of course, in Spanish. To interpret the situation, I picked up some words from their conversation like diplomat, CIMMYT, and Indu (probably means Indian). They checked everything, all my bags, including myself, for drugs and other illegal substance. Finally, they gave permission to go, and we resumed our journey towards the CIMMYT. I sat in the front seat and started looking at the road, and it's black but with the car headlight, for some distance it has brightness. Like as, half-moon brightness in the night sky. Tang!!! Yes, you are right, it's my mind again. At that moment, my mind started thinking again. Why did they stop us? Maybe, because it is 3:30 in the morning. Or because the way I look like? Believe me, at that time, the way I look like is not less than any drug dealer. With a very long beard, and long hair with a man bun. Anyway, what a welcome! But I would like to let it go and tried to have a conversation with the driver. Then I realised, in Mexico, many people don't speak English but just speak Spanish! The struggle started from day one. Hahaha. I got to know that, from the talk we had with the broken English, he has a small daughter. We reached the CIMMYT, and he helped me until my room. It's number 7 in 'Aztec' building. I don't know why, I want to give him something and I gave him the chocolates that I bought at Berlin airport, told him -thanks and give this to your daughter.

But a good start! In CIMMYT

Generally, people have a jet lag after a long flight. But not me. Hahaha. Maybe, because most of the journey, I just slept, or maybe I'm excited. After, reaching the CIMMYT I didn't sleep at all that morning, I took shower and contacted the person who is assistant to my supervisor at CIMMYT. The day was going to start like she was going to give me a tour at CIMMYT, and then, going to introduce me to Dr. Dreisigacker. The time has arrived, but she is not! Then, I got a text – 'sorry, I am on my way and I will be there in 10 minutes'. Then I realised, I'm not in Germany any more! After 10 minutes, I met her. Wow! She has a lot of positive energy and introduced me to some scientists on the way. Let me tell you something funny here, the first girl I met in Germany was Karen (my best friend) and the first woman I met in Mexico was Karen, (not just her, but her entire family became my good friends later. But little we know about that, that time.) even weird thing is they both born on the same day. After the tour, I met Dr. Dreisigacker in her chamber. I introduced myself, and she is the with the big smile -Oh! Finally, you reached safely. She said, so, you knew. What to do? Right? Since, we spent good time in writing our project proposal so we both were on the same page, and we were clear with what I have to do. I responded -I think so. She said -I will send you some data sets, and you can start from there. That's how it's started, my day one at CIMMYT.

An Indian meeting another Indian: /

When I applied to Dr. Dreisigacker, I have no Idea that there is an Indian senior plant geneticist, Dr. Deepmala Sehgal, in her group. I think some people feel this, one can get the glimpse of a personality of a person by his behaviour and manners with other people. Though it's not our intention, we still notice how he/she behaves with others, may be because we are humans. Also, you will feel the good energy when someone come to your office with a good energy. I did get to notice the same, when Dr. Sehgal has come to the office. After meeting her, we discussed the project for an hour or so and she asked me, do you want to join for lunch? I was like, is she really Indian? Haha, haha. Later in the evening, she invited me to dinner too? Again, no, she is definitely not Indian. Haha, haha. No, I was just joking. Indians are very hospitable. Later that night, we went to a restaurant 'Toks' in the Texcoco, a town near to the CIMMYT. This dinner totally broke the ice between me and Dr. Sehgal, we came to understanding that I will call her 'Deep bhai' (it's an Indian phrase, a bit informal yet quite respectful actually). From that day, she gave me unlimited access to contact her any time if I have any doubt. Now actually the burden is on me, not to misuse it, I was always conscious about it. After all, what I learnt from her was, the teacher does not always teach you, but the student always learns when he is around his teacher.

Having great lab technician's support with a good personality is a blessing to me!

In wheat molecular lab at CIMMYT has a world-class lab technicians, they know their job very well, besides they support the visitors coming from almost across the globe to their lab. When I started my work in the laboratory, I was a normal student from the Germany who came for some time. However, the time and interaction can change the game play among the individuals, and exactly, this is what happened. The support and learning I got from not one but all of them is irreplaceable by any other. I'm proud to say I learnt good knowledge from them. For that, I had to unlearn some things to learn new things. All the lab technicians in the Dr. Dreisigacker's lab are humble, greatly skilled with a good heart. On the other hand, Dr. Dreisigacker herself, is the idol of honesty, with a great knowledge of plant breeding. If you talk to her for a moment, you want to learn many things from her, not just science. Her simplicity, her care towards people in her lab, her filter less ness with honesty (which does not mean rude), and many other small things yet important things, one of them, saying I don't know if you don't know is not a shameful here in her lab. Maybe these are the qualities, as a future scientist, I need to learn besides science from here and from all of them. Even if I reach to the so-called high position in my academic and personal career, lessons to remember, like, being normal, and simple.



Networking with the world-class scientists:)

The fancy word 'world-class scientist' may be because of the world-class mentality in the environment, not just because of the world-class amenities in the environment. I felt that I was at an international scientific environment when I see the work they are doing and at the same time when I interacted with the scientists their behaviour is so normal, as any ordinary person. The thinking is all about what they are doing. Nothing more, nothing less. It's all about ordinary stuff. Though it's weird to say, being ordinary felt extraordinary to me. We had many parties with the many scientists, when you see a person in the weekend party, dancing as hell and on Monday again working as a scientist, the clear take on life with a full compassion, seems very attractive to me, and the mentality and personality of not judging someone is the quality one should learn from them. I'm fortunate that I could be able to make some connections with the international scientific community in the CIMMYT, some of them are not just fruitful for my academic career, but personal life as well.

Professionally, Work gets you respect. Period

My father always says this, '**work hard if you want to get your colleague's respect, and be honest, and ground to earth, if you want them to become your friends**'. So, with no time waste, from day one I put my 100% to work what I came here for. We wanted to develop a method to identify the Meta-QTLs. I will describe it briefly here, but soon, you can find a paper on it from us, in case you are interested to read it in detail. It will be a bit technical here, please bear with me. In 2021, a CIMMYT QTL catalogue for abiotic stress adaptive traits has been established as one of the objectives in the HeDWIC, it's a project to develop climate resilient plant varieties. This catalogue contains detailed information on marker-trait associations and QTLs related to several abiotic stress tolerant traits identified in CIMMYT spring bread wheat germplasm. All marker-trait associations and QTLs were aligned to the (International Wheat Genome Sequencing Consortium) IWGSC Ref Seq v1.0 sequence to identify their physical positions on the genome. This data was additionally overlaid with the Meta-QTLs published in the literature.

So, what I basically did was to identify the locations of meta-QTLs from the established CIMMYT QTL catalogue, by using the currently available genomics resources (e.g., the 10 Genome Project) and we established the 15 possible haplotypes for each of the selected hotspots. Of them, 9 hotspots have been selected based on several parameters and later verified via KASP genotyping in WAMI and BWDIVPAN, are the two CIMMYT wheat panels. Furthermore, we validated them with different regression models to identify the significant markers across different environments with different treatments. Even more, we identified the genes under these meta-QTLs and their network. In this experiment we are going to conclude that identified meta-QTLs on 2B, 3A, 4A and 6A have been the promising results as the potential markers for abiotic stress in wheat and further going to get tested on CIMMYT breeding pipelines.

Indeed, it was a full cycle!

Before I wind up, let me tell you why this trip to Mexico has been a full cycle. In life, birth, marriage and death are the critical steps, hey! Don't think too much about it. To say – no, there are other critical steps in life too! Why don't you just go with the flow with me this time? So, yeah! What I was saying, I have got the news that one of my close friends now from CIMMYT going to be Mom, and she came to me and said to me – 'you are going to be a God father', I didn't get it in the beginning but when I got it. It was so high moment, and one of my friends from CIMMYT got married, and I was able to attend his marriage, and finally, one of field trials coordinator has passed away! May god gives rest in peace to his soul!

Do you understand now? Why did I say? It was a 'quite a journey'.

----- Anyway, it is not the end, but just the beginning! -----

Memories



In front of the CIMMYT main entrance
This is how, I used to look in the beginning.



My Farewell party by my Group

Silverio, Alma, Dr. Dreisigacker, Sana, Fernando, Baci, Jolo, Claudia (Left to right)
Selfie by me



Lab technicians in my Group

Claudia, Baji (me), Blanca, Fernando, Baci, Jolo, Sana (PhD student) (Left to right)



In the Net-house



1st pic: 5 Acres of Greenhouse at Toluca

Dr. Velu Govindan Explaining about CIMMYT's 4 cycle crop system per year



**With Dr. Bram Govaerts, Director General a.i. (Secretary General and Chief Executive Officer)
In the middle**