

APPENDIX 2.

Thirty five selected farmers' quotes during post-game collective reflections in the second set of workshops

Lessons from the workshop

We learned new things, played, had fun and now know which insects harm us and which help us. We can now share this with others.

In our coffee farm, there are many insects that help us against rust, but they too have enemies. Like we have many enemies of our coffee: rust, middlemen and pesticides.

When I used to see so many little animal on my coffee bushes, I thought they were all pests, but no: some are protecting and our friends; they struggle with the other that damage coffee.

Value of including the game

Workshops for coffee farmers are very long and very boring; including a game makes a difference.

With the game I understood a bit better, because with words only, I get drowsy (that's the truth; every time I attend a workshop). In the game, as I look at the board and move the tokens, and as I see how the good and the bad animals eat each other, I really get to understand which helps me and which doesn't.

On the wall we only see [powerpoint] figures. But once in the game, it's as if we were seeing it in reality: each animal did his act, defending his life, giving life to others he helps. It benefits our minds because we have to think, we have to analyze what we are about to do; it clears our mind because in our mind everything is so tangled, but once our mind can focus on how we are going to deal with the situation..... so yes, it was great!

I learned by playing. I exercised the knowledge and the mind. I learned what we just saw on the screen or what we see in the coffee farm but to which we pay little attention.

It's different to just see than to practice; by practicing one elaborates more.

When we are practicing through the game it's like being by the coffee bush, deciding what's convenient and what is not.

Struggling with the game

Learning the game takes time and effort, but slowly my mind clarified.

If you continue to visit and we invite others to play, after two or three tournaments I would learn it much better.

Interaction Awareness

There are so many little animals in our coffee farms that we prefer to ignore them. I had no idea there was a chain and each animal has a function and they compete.

We realized that an insect helps another insect; if it didn't exist, it wouldn't help the whole chain. Every insect needs the help of other.

Apparently it's just a game but through it I learned, for example, that there is interaction between those that harm and those that help us.

The youngest player (12 y.o.) The fly helps the beetle by killing the ant. The fly also helps the beetle by hovering above the ants so that they can't approach; this way of helping the beetle is more difficult to perceive. The beetle is freed from the ant and now has no problem to eat the scales, and without these, the rust can better reproduce. Now, the wasp kills the larva beetle so the rust won't reproduce, but if ants become abundant again, they frighten the wasp and it flees from the coffee bush.

The ant the scale and the wasp are my friends; the mother and daughter beetles my enemies.

When I'm the wasp and I'm about to eat the beetle's daughter, I think: that's good ! But then she eats, grows into a mother beetle and the token I was going to eat.... is gone! And that makes it fun!

The complexity of controlling scales & rust

We used to think that rust could be eliminated. We now see that there are many animals that defend it and few that help combat it. We learned that its impossible to eliminate rust.

Researcher: Which outcome do you expect more frequently on a coffee bush: the scale population flourish and rust is somewhat controlled; scale population remains low; scale population is eliminated.

Answers: (1) It depends on what animals are there: if the fly is absent the beetle is busted; it depends. (2) When there are more ants and wasps, scales increase, but ants are in danger also, so sometimes they win and sometimes they lose. Sometimes they are more abundant and sometimes less.

How we learn

L: all I just told you required the field observations and analysis of a team of researchers for many years. Farmer's remark: If we observe, we can all learn and teach.

At times I did get bored during the workshop, but we learned to protect our plants and not destroy the animals that are there.

We were unaware of what's really going on in our coffee farms; we haven't been curious to see who lives on our plants.

We used to focus on the ant itself, and as such it's bad because it stings us so we destroy them; because we were unaware of all these interactions; the workshop has been very interesting and beneficial.

We don't know the white (halo) fungus much. I think we should now go to the coffee fields so that we can get to know them very well, because for me this course is something new, and although we have been in our fields we don't know them, we don't see them; it like we had abandoned them. But through this workshop and activities we will start paying attention to them, and knowing them.

I was telling others that It would have been good to organize ourselves to go to the coffee farms to see exactly which animal is which, because we had some confusion with the beetle larva and a caterpillar called "little chick".

What really made me think was when you asked me questions during the individual quiz.

Both the game and the knowledge you shared is very good, but we really need more time to meet. [Researcher: how should we give it more time?] Well, actually for me what I learned today was enough, because I wouldn't just leave it at that: I would go home and recall the chain [network] and make it more understandable to myself, in my own way, however I can; practice it. Now what I still want to understand is how I need to manage my coffee so that the harmful animals do not exist; that's something that wasn't clear: we saw the relation between all those insects but we did not discuss how we can avoid rust. I understand that if there is rust, all those insects will show up, and if not, they won't; that relation will not exist.

Action from knowing

Thanks to this game we now know which little animals help us and which do not. Before, I used to take scales off my coffee bushes. Now I'll better take care of them so that they will get rid of rust.

Through the game we can learn how to combat rust; it's difficult but with effort we can. Effort means not applying so many chemicals so that the insects that help us won't run away.

What we need to learn is how to produce more coffee-scales

These little coffee scales do their work to finish the rust problem; but they too have their enemies. Let's not bring down the ants' trees: there can be an alternative against the rust.

We just have to let all these animals go on with their lives; with chemicals we destroy them all, good and bad. We only have to make sure the plant grows properly and let these little animals combat each other.

In our mind and in yours, we are extremely aggressive with ants and with all animals. If a little snake crawled in just now, we would jump for a stick to kill its head. You on the contrary as biologists are really good friends of animals, you let snakes and spiders and cockroaches go on with their life. We are very aggressive with animals, but today we are learning about them, and I will take to my family the message that dear God sent us today through you. You came today to awaken our belief that our coffee farms are not 100% lost: We have defenders, ants that are struggling for us. We are very rude with them, but starting today, we are going to give ants a little bit of freedom; we won't mess with them, just let them be there.

I think I'm going to stop using pesticides; if I want to leave anything good for my children for the future, I'm the one who has to start.