

Salinity tolerance of avocado: the role of the rootstock Question and Answer Period

[Steve Grattan]: Thanks, Ricardo. We're dangerously close to lunchtime. The idea here is to stimulate as much discussion and interaction as possible. That's still going to happen, because in the afternoon, things are scheduled such as to provide a bigger opportunity for more discussion

While there may be some of questions on your mind, why don't we field three questions?

Q: This is a speculative question. We heard earlier about the graft junction maybe changing water relations. How do people on the panel feel about that junction changing salt relations once the salt, whatever we define as salt, gets into the transpiration stream?

[Mary Lu Arpaia]: Well, I think the tissue analysis showed, it wasn't talked about here, but when we did the sampling in both the study that I did with Jim Oster and the one Mike Mickelbart and I conducted, that bud union is very important. And you can see distinct differences below and above the rootstock junction. So it is very important, and we don't understand that. I think the work that Alejandro Barrientos has done on water flow across the bud union could be very important as we move forward trying to understand the avocado and its response to salinity and other stresses. But there are differences right at the bud union. And so, you just can't say stem tissue or trunk tissue. You have to say the trunk below the bud union or the trunk above the bud union.

Q: What happens when you get rid of the bud union? Would you create new roots above the bud union?

[Reuben Hofshi]: Well, I could say something. We're doing experiments in eliminating the bud union by actually rooting 'Hass' trees on their own rootstock, in other words, no grafting at all. And it's a little bit associated with what Alejandro Barrientos was saying earlier, and surely it will come up this afternoon, and hopefully Ben Ya'acov can comment. Surely this will eliminate any problems that associate with bud union not allowing or allowing salts to travel through. However, there are other factors involved, such as root rot and soil that you have to look into before you're going to use a rooted tree like a 'Hass', because it's extremely sensitive to root rot.

[Steve Grattan]: Yeah, I think this is going to be, when it comes to selecting rootstocks, there's going to be a lot of interacting effects that are going to have to be considered, not just salt tolerance, but tolerance to other types of problems.

Q: Have you seen any differences with micrografting? Do you get a better union with micrografts? Or is there anything else that gives a different kind of union?

[Mary Lu Arpaia]: I don't think anybody's looked at that at this point in time. I think, at least under California conditions, we're still at a relatively very elementary step in setting our horizons beyond root rot, and looking at other factors involved in tree performance in the field. But I think we're on the way, and I think we have the genetic resources within the material in California to move ahead in this area. But there's far more questions we can't answer than we can answer.

[Audience member]: There is a paper from the 1950's, and I think it might be by Bingham, looking at avocado rootstocks and it was about salinity, and 'Hass' was one of the better ones and they related it to be just because it's got a Guatemalan in it, much better than the Mexican rootstocks. So, you know, Rueben might be on to something here; I think there's some data in that.

[Audience member]: The father of all this, Ben Ya'acov, is, unfortunately, doesn't want to talk, so... He's a little sleepy. So, talk about it in the afternoon, I guess.