Subject: RE: Heat tolerance design
From: Inaki Garcia-De-Cortazar-Atauri <inaki.garciadecortazar@inra.fr>
Date: 9/6/16, 5:11 AM
To: "Parker, Amber" <Amber.Parker@lincoln.ac.nz>, Elizabeth Wolkovich <lizzie@oeb.harvard.edu>, Inaki Garcia de Cortazar Atauri <igarcia@avignon.inra.fr>, Andy Walker <awalker@ucdavis.edu>

Hi all,

Thank you Lizzie for this update of the experiment. I am happy to see that plants starts their budbreak.
I agree with all the proposal in the mail and in the current version of the protocole.
Concerning the question (at the end of the document) about photoperiod, I think there should not be big changes if photoperiod is not a 12.
For your information, one of my grapevines at home was in very bad conditions (there were only 2-3 leaves) when I came back from holidays, because summer is being very dry here. After I irrigated it (on August 22th), budbreak started again (last week) and I have already new shoots with 5-7 leaves and clusters are already visible. Maybe I will see a second flowering this year 🙂 I will take a picture to send to you.
All the best

Iñaki

Veuillez noter ma nouvelle adresse inaki.garciadecortazar@inra.fr

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-----Message d'origine-----
De : Parker, Amber [mailto:Amber.Parker@lincoln.ac.nz]
Envoyé : lundi 5 septembre 2016 23:13

À : Elizabeth Wolkovich <lizzie@oeb.harvard.edu>; Inaki Garcia de Cortazar Atauri <igarcia@avignon.inra.fr>; Andy Walker <awalker@ucdavis.edu>
Objet : RE: Heat tolerance design

Hi Lizzie, Inaki, Andy,

Please see comments below.

All the best
Amber

-----Original Message-----
From: Elizabeth Wolkovich [mailto:lizzie@oeb.harvard.edu]
Sent: Tuesday, 6 September 2016 7:11 a.m.
To: Parker, Amber <Amber.Parker@lincoln.ac.nz>; Inaki Garcia de Cortazar Atauri <igarcia@avignon.inra.fr>; Andy Walker <awalker@ucdavis.edu>
Subject: Re: Heat tolerance design

Hi Iñaki, Amber and Andy,

Thanks for all your comments on the heat tolerance experiment!

The grapes are now bursting bud (EL stage by day attached, each light green line is one rep, ignore the red line which is the mean -- we need to measure over two days so it's not the most accurate mean)!
AP: great to see these graphs - One rogue tempranillo vine but the rest is looking like it is progressing well !

So we need to finalize the experiment. I have updated the protocol to incorporate comments. There are not so many changes so let me highlight them here:

- we'll scrub CO2 to 400ppm in the day and let it go as high as 600 ppm at night (if anyone has a better ref than this: http://joannenova.com.au/2013/09/plants-suck-half-the-co2-out-of-the-air-around-them-before-lunchtime-each-day/
I'd appreciate it). Sound good?

AP: yes

- varieties list, check out the attached xlsx, see the vars sheet, especially columns M onward. I have swapped out Pinot Meunier for Furmint based on Andy's request and -- I am sorry about this -- we don't definitively seem to have Pinot Noir so I am putting in Pinot Gris as a replacement. Yikes! I know, it's awful to not have Pinot Noir and Mourvedre and I am not sure what happened with the cutting but we have just what we have.

- As Amber pointed out a while ago, we have extra space in chamber temps 2 and 4 (means of 26 and 34 C). We could add two reps of:
Macabeo
Dolcetto
Zinfandel
to these chambers. So these varieties will ONLY get two treatments but it's better than no data in my mind. Sound good?

AP: all of the above sounds good.

Amber, re your Gompertz curve -- that makes sense to me for analysis. Do we need to do anything different during experiment, that is, while we're measuring?
AP: The only point is to monitor sufficiently to ensure you get enough points for a reasonable curve fit. You suggested 2-3 days, I would aim for every second day. An alternate function to consider is the Richardson's general logistic which include the logistic and gompertz function. However, given that we know there is a lag after 50% for most phenological observations it can be easily captured by the gompertz.

Iñaki, the chambers are supposedly accurate and stable within 0.5 C but we'll see. We have yet to push them this high! Also, we just have a simple soil moisture probe we're using. It's not great but good enough and should be fairly accurate in moist soils.

Please let me know if I missed any of your questions or comments!

All the best,
Lizzie

On 8/25/16 10:28 PM, Parker, Amber wrote:

> Hi Lizzie,
>
> I have had a look at this document and made some comments (see attached). In summary it looks like the design and plant preparation are progressing nicely and it's great to see the finalisation of these finer details.
> I referred to a reference in my comments with regard to monitoring flower progression of inner and outer arms, see Figure 3 b in :
> http://www.vitis-vea.de/admin/volltext/W0%2014%20231.pdf
> Let me know if any of my comments require further discussion, I look forward to hearing about the next stage.
>
> Regards
>
> Amber Parker
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-----Original Message-----
From: Elizabeth Wolkovich [mailto:lizzie@oeb.harvard.edu]
Sent: Tuesday, 23 August 2016 4:06 a.m.
To: Parker, Amber <Amber.Parker@lincoln.ac.nz>; Inaki Garcia de Cortazar Atauri <igarcia@avignon.inra.fr>; Andy Walker <awalker@ucdavis.edu>
Subject: Heat tolerance design

Hi all,

Attached please find the latest draft of the heat tolerance experiment on winegrape varieties. Nicole Merrill (undergraduate intern in the lab) has helped out tremendously with a literature review and, based on that, I think we have a sense of what range of temperatures to hit. I am proposing these five (I give means and night/day):

– Mean of 20 C – 17/23 C

– Mean of 26 C – 23/29 C

– Mean of 30 C – 27/33 C

– Mean of 34 C – 31/37 C

– Mean of 37 C – 34/40 C

My other major query is if we should scrub CO2 out of the chambers (to avoid it getting very high with all the plants packed in)? My thought would be to keep CO2 to 300 or 400 ppm. What do you think?

If you have time to read the full design and comment I would appreciate it.

The grapes are out of the chambers and in the greenhouse ... now we wait for budding. Once we have that we can finalize the exact varieties and replicates.

All the best,

Lizzie

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> by return e-mail or telephone and then delete this e-mail together with all attachments from your system."

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