



SUMMER SCHOOLS

UNIVERSITY OF ANGERS - FRANCE

REPORT 2019

PLANT HEALTH AND QUALITY

24TH JUNE | 12TH JULY



www.summerschools.univ-angers.fr

Conception : Direction de la communication UAI | Crédit photo : Fotolia



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RFI Objectif Végétal

The Plant Health and Quality Summer School is financially supported by the "RFI Végétal program" (Research - Education - Innovation program in Pays de la Loire), which is funded by the Région des Pays de la Loire, Angers Loire Métropole and the European Regional Development Fund.

Objectif Végétal, Research, Education & Innovation in Pays de la Loire is a regional program (2014-2019) established by the Pays de la Loire Regional Council and that involves the teaching and research institutions (Université d'Angers, leader of the program, Agrocampus Ouest, ESA, Inra, Université de Nantes) as well as the international French cluster Végépolys.

Objectif Végétal program mainly aims to **reinforce the visibility and attractiveness of the regional centre for education and basic research**, to boost collaborations with companies and reinforce the processes of economic valorization of research findings, and to develop international partnerships.



List of participants

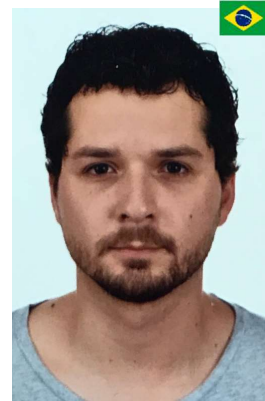
These are the participants of the Plant Health and Quality Summer School. Find their area and place of study plus a flag indicating their nationality:



**Ioana - Alexandra
BALA**
Bucharest – ROMANIA
Master in Applied Genetics and
Biotechnology



Julia BARRA
Rio de Janeiro - BRAZIL
Master in Agronomy and Soil
Science



Felipe BARRETO DA SILVA
Botucatu - BRAZIL
Master in Plant Protection



Carolina CARDOSO
Botucatu – BRAZIL
Master in Agronomy



Larissa CHAMMA
Botucatu - BRAZIL
Master in Agriculture



Olivier DAYOU
Nairobi – KENYA
Master in Plant molecular
biology and biotechnology



Elena GIULIANO
Turin – ITALY
Master in Environmental Biology



Shiqi GUO
Kunming – CHINA
Master in Botany



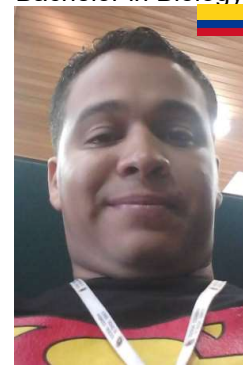
Illia KOSTIUK
Kyiv – UKRAINE
Bachelor in Biology



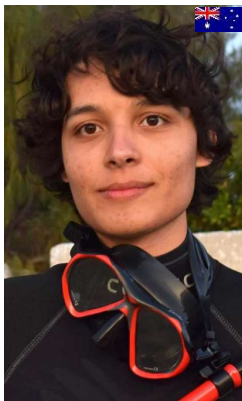
Saku MATTILA
Helsinki – FINLAND
Bachelor in Biology



Marielsie MONTES SANTANA
Medellin – COLOMBIA
Master in Agricultural Sciences



Manuel PANTOJA GUERRA
Medellin – COLOMBIA
PhD in Biotechnology



Umair RANA
Brisbane – AUSTRALIA
Master in Environmental
Management in Conservation



Marcos Roberto RIBEIRO JR.
Botucatu – BRAZIL
Master in Agronomy



**Sara Yumi SASSAMOTO
KUROKAWA**
Botucatu – BRAZIL
Bachelor in Agronomy and Plant
Protection



Naomi TRITEAN
Bucharest – ROMANIA
Master in Biochemistry and
Molecular Biology



Eduardo VICENTIN
Botucatu – BRAZIL
Master in Agronomy



Chaoqun WANG
Beijing - CHINA
Master in Bioengineering



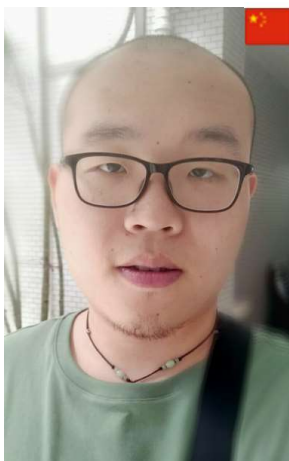
Weiwen XUE
Guangzhou - CHINA
Master in Horticulture



Zhiyi YU
Beijing- CHINA
Master in Horticulture



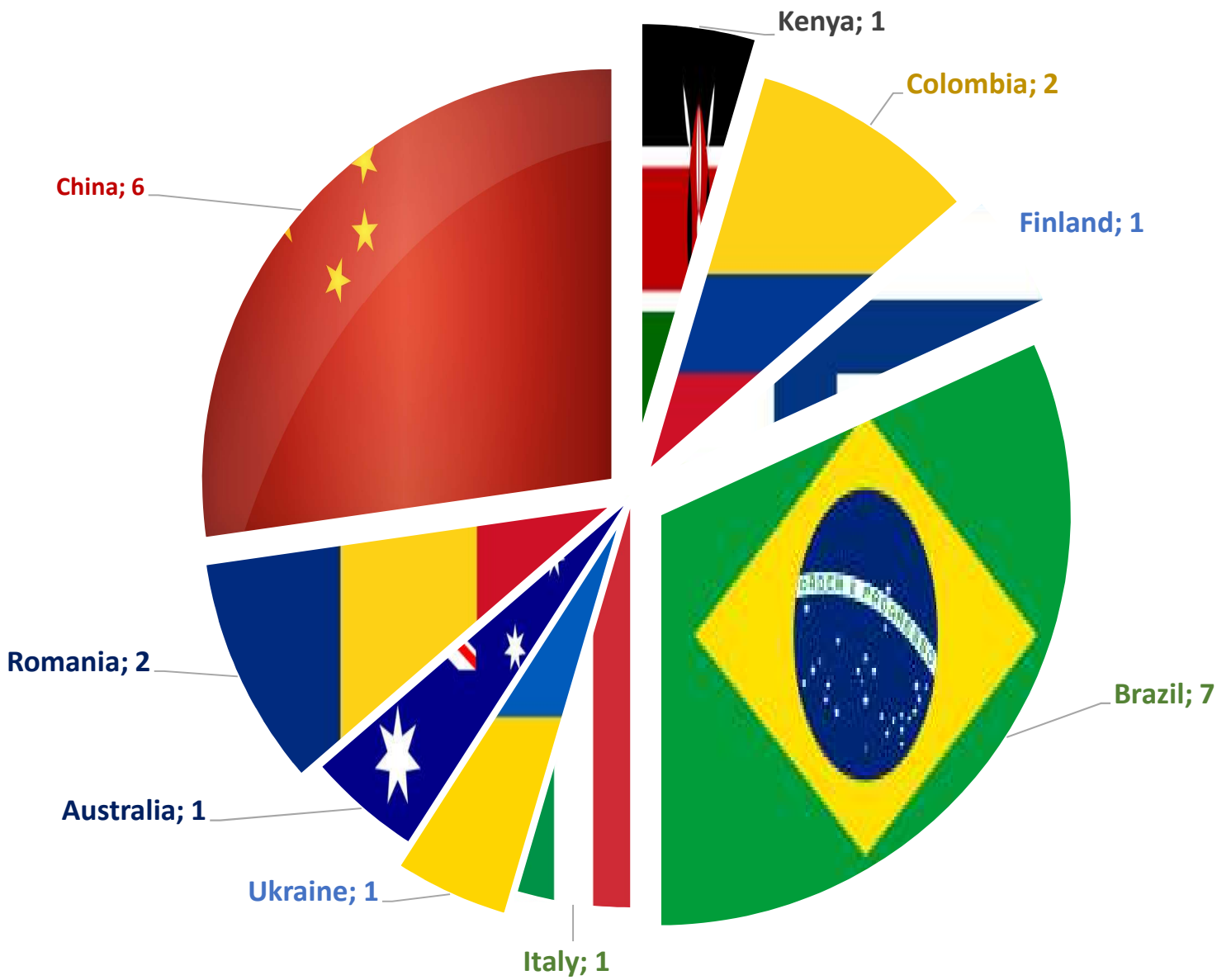
Zhongpiao ZHOU
Chongqing - CHINA
Master in Plant protection



Qiunan ZHU
Guangzhou – CHINA
Master in Horticulture

Profile of participants

Origin (country of study):





List of speakers

AHMAD Ali, IRHS-University of Angers (FR)
ANTON Sylvia, IGEPP-EGI-INRA – Angers (FR)
BARRET Matthieu, IRHS-INRA-Angers (FR)
BENEJAM Juliette, IRHS-University of Angers (FR)
BERRUYER Romain, IRHS-University of Angers (FR)
BOUTIGNY Anne-Laure, ANSES – Angers (FR)
BRISSET Marie-Noëlle, IRHS-INRA-Angers (FR)
BUITINK Julia, IRHS-INRA-Angers (FR)
CRESPEL Laurent, IRHS-Agrocampus Ouest – Angers (FR)
DEGRAVE Alexandre, IRHS-AgroCampus Ouest-Angers (FR)
DEMILLY Didier, GEVES – Angers (FR)
DESGRANGES Guillaume, CeLFE - Angers (FR)
FEGEANT Nicolas, Végépolys-Angers (FR)
FERRATON Pierre, Vilmorin (FR)
FISCHER-LE SAUX Marion, IRHS-INRA – Angers (FR)
GAUCHER Matthieu, IRHS-INRA – Angers (FR)
GENTIT Pascal, ANSES – Angers (FR)
HIBRAND SAINT OYANT Laurence, IRHS-INRA – Angers (FR)
HUCHE-THELIER Lydie, IRHS-INRA – Angers (FR)
JACQUES Marie-Agnès, IRHS-INRA-Angers (FR)
LAURENS François, IRHS-INRA – Angers (FR)
LE GALLO Méryl, ANSES-Angers (FR)
LEMOIGNE Marie-Anne, IRHS-University of Angers (FR)
LEPRINCE Olivier, IRHS-AgroCampus Ouest (FR)
LOPEZ ARIAS Diana, IRHS-INRA-Angers (FR)
LUQUET Martin, IGEPP-EGI-INRA – Angers (FR)
MAROLLEAU Brice, IRHS-INRA – Angers (FR)
MONTIEL Grégory, LBPV - University of Nantes (FR)
MOREL-CHEVILLET Philippe, IRHS-INRA – Angers (FR)
MOULIN Clarice, IGEPP-EGI-INRA – Angers (FR)
PERROT Sophie, GEVES – Angers (FR)
PORTIER Perrine, IRHS-INRA – Angers (FR)
POUPARD Pascal, IRHS-University of Angers (FR)

POUVREAU Jean-Bernard, LBPV - University of Nantes (FR)
REDJALA Tanegmart, Business Developer, RFI Objectif Végétal, Angers (FR)
REMENANT Benoît, ANSES-Angers (FR)
ROLLAND Mathieu, ANSES-Angers (FR)
ROUSSEAU David, IRHS – University of Angers (FR)
SAKR Soulaïman, IRHS-AgroCampus Ouest-Angers (FR)
SAMIEI Salma, IRHS – University of Angers (FR)
SERANDAT Isabelle, GEVES – Angers (FR)
SOL-MOCHKOVITCH Zoé, IGEPP-EGI-INRA – Angers (FR)
SYMONEAUX Ronan, GRAPPE – ESA - Angers (FR)
THOMAS Caroline, CeLFE - Angers (FR)
THOUROUDE Tatiana, IRHS-INRA – Angers (FR)
VERDIER Jérôme, IRHS-INRA – Angers (FR)
ZINE Mouad, IRHS – University of Angers (FR)

Invited speakers

GAUDIN Jonathan, INRA – Bordeaux (FR)
MOREL Jean-Benoît, INRA –Montpellier (FR)
PAUL-GILLOTEAUX Perrine, CNRS Nantes (FR)
PENNFIELD Steve, John Innes Center-Norwich (UK)
TASIN Marco, Swedish University of Agricultural Science (SE)
YONEYAMA Kaori, Ehime University (JP)

Program

	Monday 24 June 2019	Tuesday 25 June 2019	Wednesday 26 June 2019	Thursday 27 June 2019	Friday 28 June 2019	Saturday 29 June 2019	Sunday 30 June 2019
9:00 AM	Details about the welcome day page 2					Train departure at 9.06am Angers Train Station	
	Welcome coffee				Chemical ecology of insect crop pests Sylvia Anton Amphi D - ACO		
10:00 AM	Distribution of welcome pack						
	Presentation of the school - Room F204	French language course Caroline Thomas Room A119 Faculty of sciences	French language course Caroline Thomas Room A119 Faculty of sciences	French language course Caroline Thomas Room A119 Faculty of sciences		Atlantic seacoast day	Visit of Terra Botanica
11:00 AM	Opening ceremony Plenary conference				Applied chemical ecology at work in apple orchards Marco Tassin - Amphi D - ACO	La Baule	a plant-themed amusement park Angers
12:00 PM	P Paul-Guilloteaux - A Paré						
	Welcome lunch in the campus	Lunch University Restaurant Belle-Beille	Lunch University Restaurant Belle-Beille	Lunch University Restaurant Belle-Beille	Lunch University Restaurant Belle-Beille		
1:00 PM							
2:00 PM					1:30-2:45pm Group A : Aphid and parasitoid olfactory choice experiments - Martin Luquet & Clarice Moulin - Room E232 - Bât E - ACO Group B : Electrophysiological recordings of insect antennae - Sylvia Anton & Zoé Sol-Mochkovitch - Room E222 - Bât E - ACO ↻ 3:00-4:30pm		
3:00 PM	Example of sustainability resistance based on diversity - Jean-Benoît Morel GF meeting room - M Recherche	French culture course Guillaume Desgranges Room A119 Faculty of sciences	French culture course Guillaume Desgranges Room A119 Faculty of sciences	French culture course Guillaume Desgranges Room A119 Faculty of sciences			
4:00 PM	Welcome words Presentation of research structures (SFR QUASAV, Vegepolys) GF meeting room - M Recherche						
5:00 PM							
6:00 PM							
7:00 PM	Guided tour of Angers Office de tourisme	Kayak session CKCA Lac de Maine	Bowling Bowling Le Collisée				
	Wine tasting Museum Jean-Lurçat						
	Official ceremony		Social activities		French course		Visit
	Invited speaker		Conference		Workshop		Personal work

	Monday 01 July 2019	Tuesday 02 July 2019	Wednesday 03 July 2019	Thursday 04 July 2019	Friday 05 July 2019	Saturday 06 July 2019	Sunday 07 July 2019
9:00 AM	Visit of the LSV Plant Health Laboratory - ANSES Pascal Gentit - ANSES building	Pathogenicity determinants and plant partial resistance against fungal pathogens - Romain Berruyer - Ground floor meeting room	Ornamental plant architecture and environmental factors - Soulaïman Sakr - Ground floor meeting room - <i>Maison recherche</i>	Plant resistance inducers (elicitors)	Travel to Paris by coach Departure at 5:45am from the residence		
10:00 AM	Group A - Workshop Droplet digital PCR applied to plant health and quality - M Rolland, M Le Gallo, AL Boutigny - ANSES Group B - Visit of CIRM-CFPB : a microbial resource center - P Portier - Bat C INRA	Low-cost imaging for plant health monitoring... David Rousseau - Ground floor meeting room	Personal work to prepare the presentation of Master's project Room Authion, Bât. E-INRA	A methodology to quantify defense gene expression in plant by qPCR Matthieu Gaucher, Alexandre Degrave, Marie-Noëlle Brisset, Brice Marolleau Room Authion, Bât E-INRA	Visit of greenhouses National Museum of Natural History (MNHN) Paris		
12:00 PM	Lunch University Restaurant Belle-Belle	Lunch University Restaurant Belle-Belle	Lunch University Restaurant Belle-Belle	Lunch University Restaurant Belle-Belle	Picnic in the Gardens of the MNHN		
1:00 PM							
2:00 PM	Bioinformatic with Galaxy for Dummies Benoit Remenant Pascal Gentit Anne-Laure Boutigny Room Authion Bat E - INRA	1:30-2:45 Group A - Image processing for plant health monitoring - Salima Samiei, Ali Ahmad et Mouad Zine - Room B202 ACO Group B - e-phytia, web applications and mobile tools specialized in Plant Health - Jonathan Gaudin & M.A. Le Moigne - Room B202 ACO 🔄 3:15-4:30pm	1:30-3:00 Group A - Plant photosynthetic activity - Lydie Huché-Thélier - Room B106 - ACO Group B - Architectural analysis of plant by 3D digitization - Laurent Crespel & Philippe Morel-Chevillat - Room B107 - ACO 🔄 3:00-4:30pm	Apple breeding program François Laurens - Room Authion	Visit of Paris Free time		
3:00 PM							
4:00 PM	Group A - Visit of CIRM-CFPB : a microbial resource center - P Portier - Bat C INRA Group B - Workshop Droplet digital PCR applied to plant health and quality - M Rolland, M Le Gallo, AL Boutigny - ANSES			Quantitative Trait Loci detection using RQTL... Diana Arias Lopez Juliette Benejam Laurence Hibrand Saint Oyant Room Authion, Bât E-INRA			
5:00 PM							
6:00 PM	Social Activity Parc Balzac		General information about PhD fellowships & Friendly evening with local doctoral students Restaurant La Réserve - Le Quai		Dinner in the restaurant Bistrot Bigot in Paris (trip back to Angers by coach at 9:00pm)		
7:00 PM			Social activities Conference				
	Official ceremony				French course		Visit
	Invited speaker				Workshop		Personal work

	Monday 08 July 2019	Tuesday 09 July 2019	Wednesday 10 July 2019	Thursday 11 July 2019	Friday 12 July 2019	Saturday 13 July 2019	Sunday 14 July 2019
9:00 AM							
	Analytical and sensory methods to assess fruit quality Roman Symoneaux Room at ESA	Stimulants dependent germination of parasitic plant Kaori Yoneyama GF meeting room - M. Recherche	Introduction to plant seed biology - O. Leprince Ground floor meeting room, Maison de la Recherche	Maternal effects in seeds Steve Penfield GF meeting room - M Recherche	Departure from the residence at 8:00am Visit of ITEPMAI - Chemillé The French research institute for perfume, medicinal and aromatic plants	Departure from Angers Please leave your room before noon	
10:00 AM		Parasitic plant seed preparation GF meeting room - M. Recherche 11:00-12:00- Group A/B Rooms E228 and E225 - ACO - Grégory Montiel & J-B Pourreau	The secrets of eternal life: anhydrobiosis J. Buitink Seeds capsule of time (seed conservation) O. Leprince GF meeting room - M Recherche	Activities of the Variety and Seed Study and Control Group Isabelle Sérandat & Sophie Perrot - GEVES	Laurence Hibrand Saint Oyant & Tatiana Thouroude		
11:00 AM							
12:00 PM							
1:00 PM	Lunch at ESA	Lunch University Restaurant Belle-Belle	Lunch University Restaurant Belle-Belle	Lunch University Restaurant Belle-Belle	Picnic Lunch		
2:00 PM	Oral presentation of the students works and projects Marion Fischer-Le Saux Nadine Dueso Sébastien Soulié Tanegmart Redjala Ground floor meeting room, Maison de la Recherche	Workshop 1 (group A/B) : parasitic plant seed germination: a Strigolactone Bioassay, JB Pourreau, Room E228, ACO Workshop 2 (group B/A) : parasitic plants - host plant interaction: minirhizotron experiment, G. Montiel, Room E225, ACO Plate reading and workshop conclusion Ground floor meeting room Maison de la Recherche	Impact of abiotic stresses on seed quality - Jérôme Verdier GF meeting room - M Recherche	Process involved in assembly of the seed microbiota - M. Barret GF meeting room - M Recherche Visit of the PHENOTIC facilities Didier Demilly GEVES Phenotyping-image analysis and study of germination : D. Demilly Room Authion, Bât. E - INRA	Visit of an old rose garden Rosiers s/ Loire Laurence Hibrand Saint Oyant & Tatiana Thouroude		
3:00 PM							
4:00 PM							
5:00 PM					Closing ceremony Room Aubance and hall at bât. E-INRA		
6:00 PM							
7:00 PM		Diner - Guinguette La Riviera near the Loire river					

Official ceremony
Invited speaker

Social activities
Conference

French course
Workshop

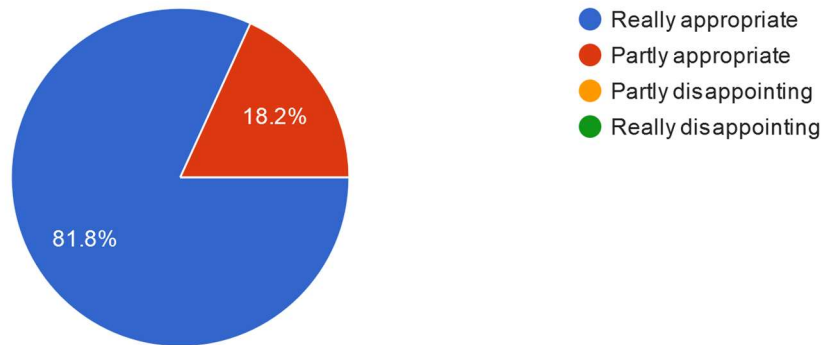
Visit
Personal work

Scientific program feedback

First week: 24th – 28th June

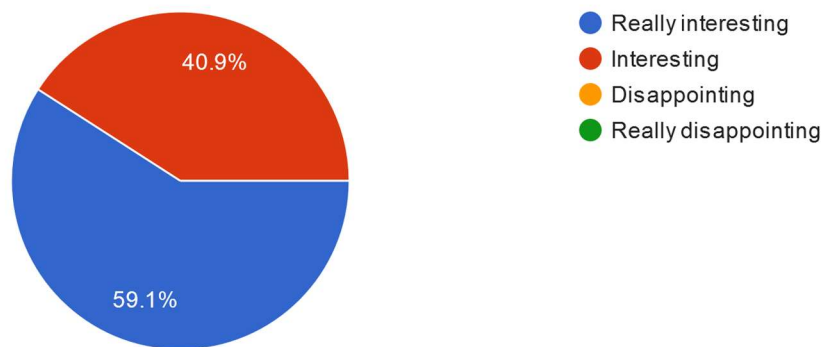
The presentation of the school

22 responses



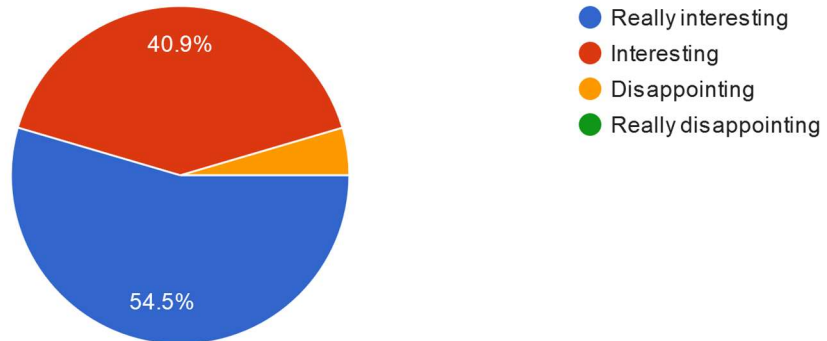
The lecture "example of sustainability resistance based on diversity"

22 responses



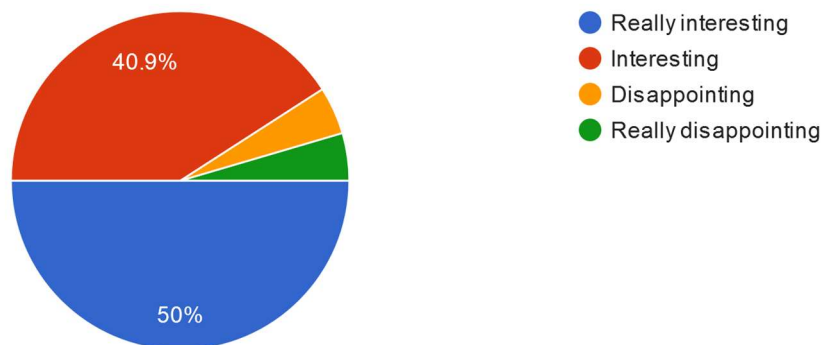
The Presentation of research structures

22 responses



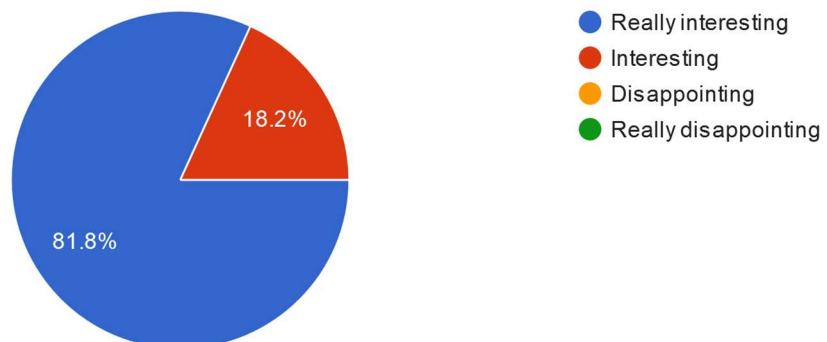
French culture courses

22 responses



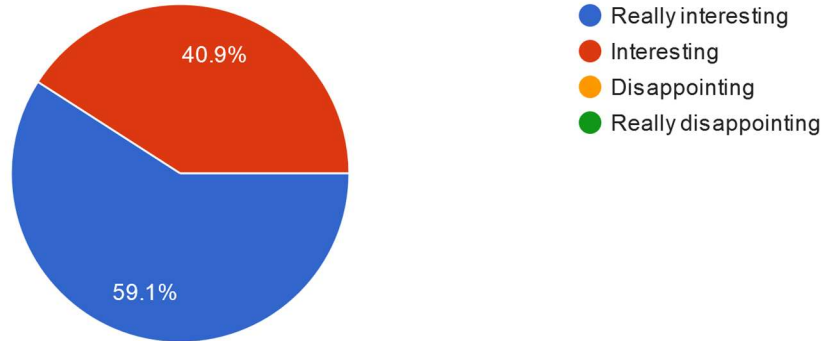
French language courses

22 responses



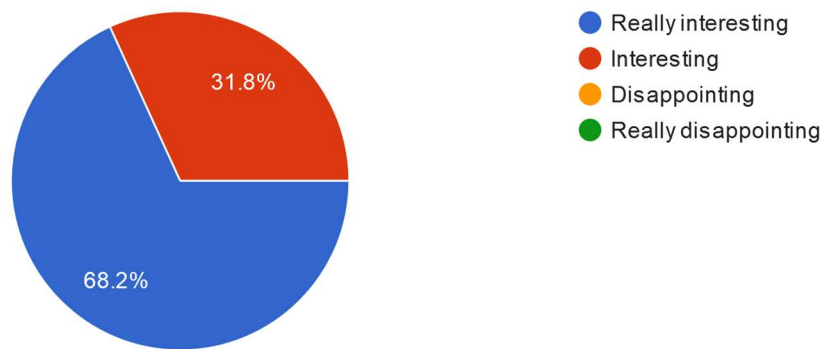
"Chemical ecology of insect crop pests"

22 responses



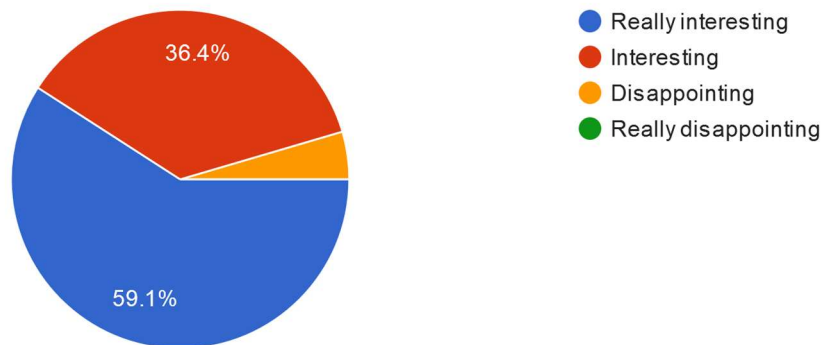
"Applied chemical ecology at work in apple orchards"

22 responses



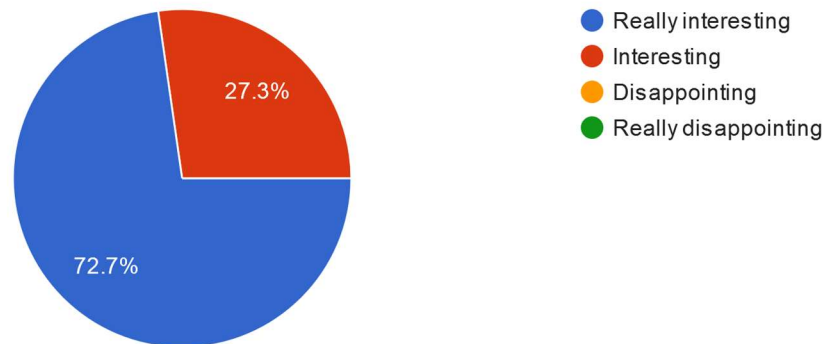
"Aphid and parasitoid olfactory choice experiments"

22 responses



"Electrophysiological recordings of insect antennae"

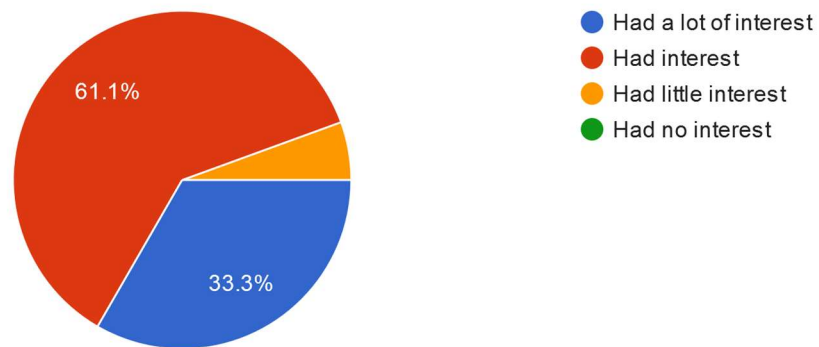
22 responses



Second week: 1st – 5th July

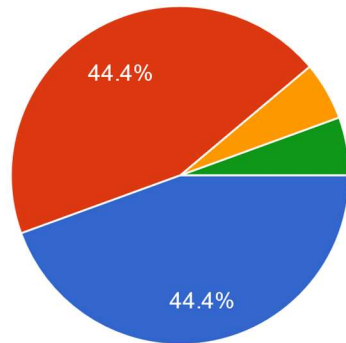
Visit of the LSV Plant Health Laboratory

18 responses



Workshop digital PCR

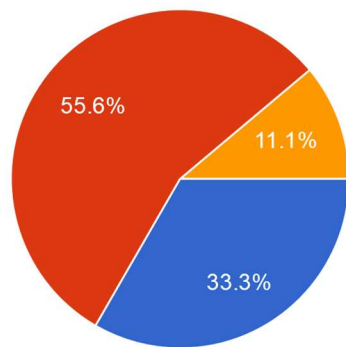
18 responses



- Had a lot of interest
- Had interest
- Had little interest
- Had no interest

Visit of CIRM-CFPB

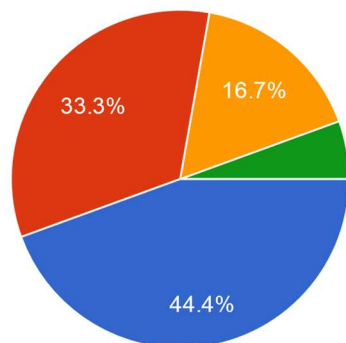
18 responses



- Had a lot of interest
- Had interest
- Had little interest
- Had no interest

Bioinformatic with Galaxy of Dummies

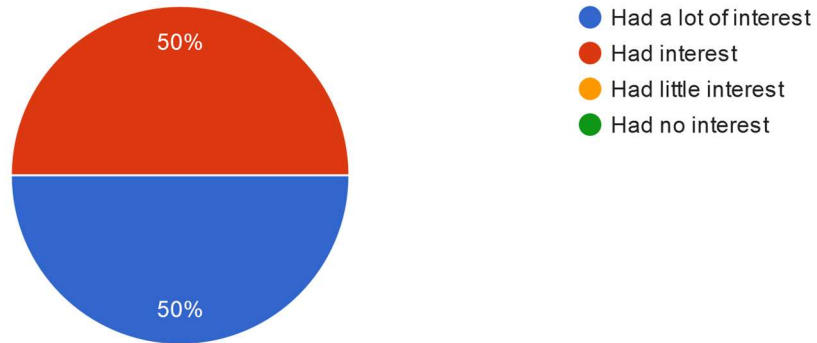
18 responses



- Had a lot of interest
- Had interest
- Had little interest
- Had no interest

Pathogenicity determinants and plant partial resistance against fungal pathogens

18 responses



Low-cost imaging for plant health monitoring

18 responses

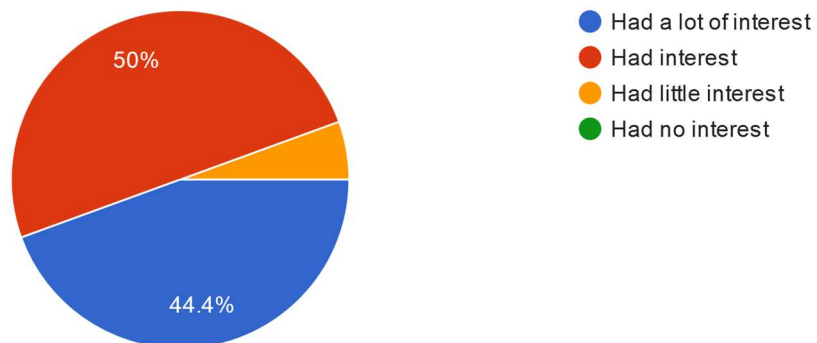
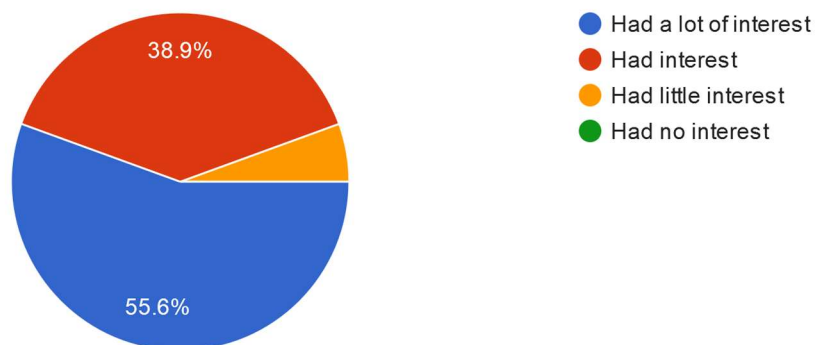


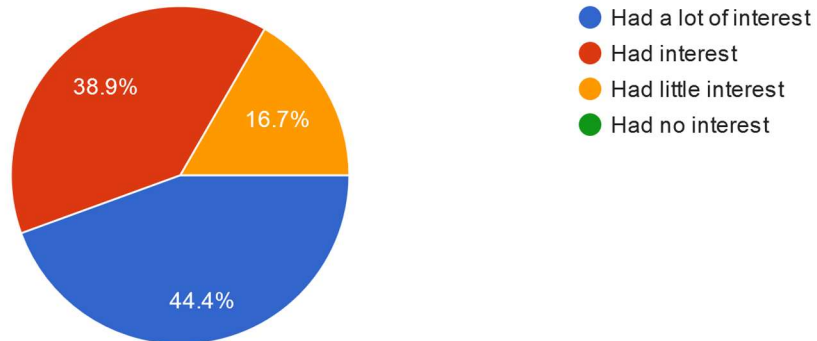
Image processing for plant health monitoring

18 responses



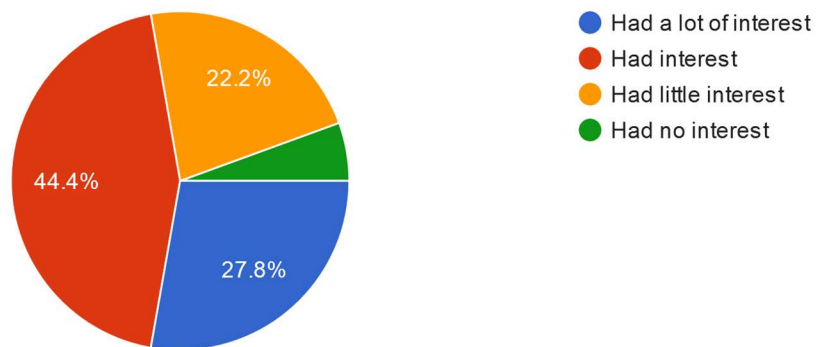
E-phytia workshop

18 responses



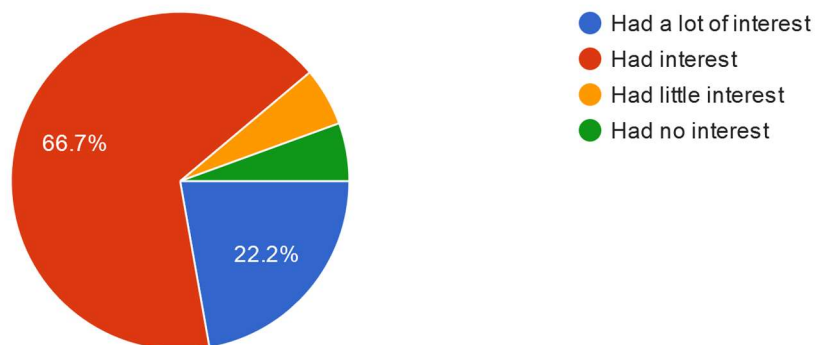
Ornamental plant architecture and environmental factors

18 responses



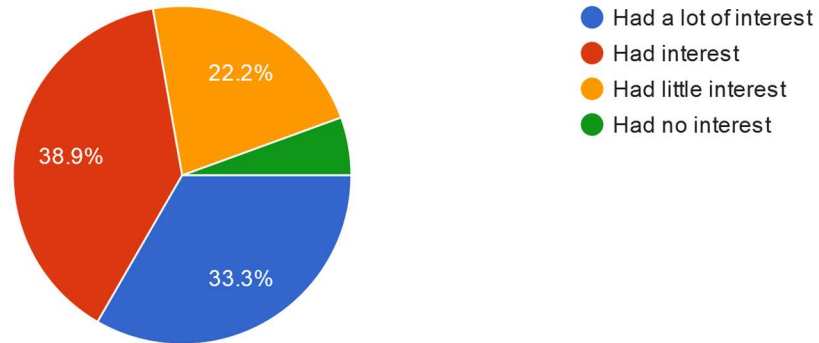
Plant photosynthetic activity

18 responses



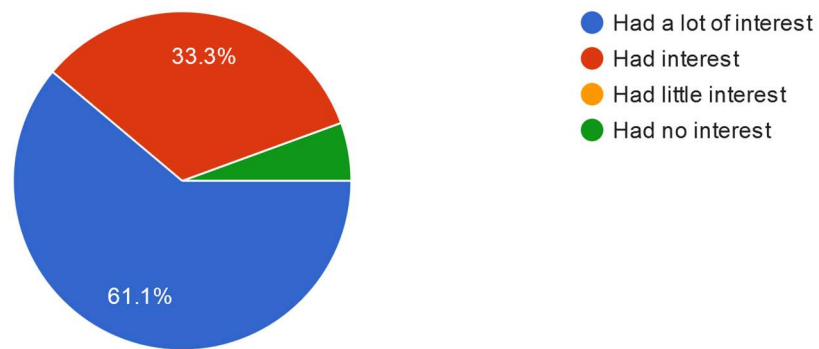
Architectural analysis of plant by 3D digitization

18 responses



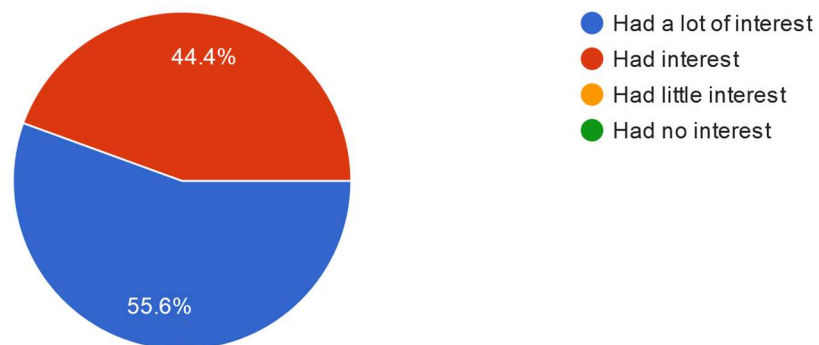
General information about PhD fellowships

18 responses



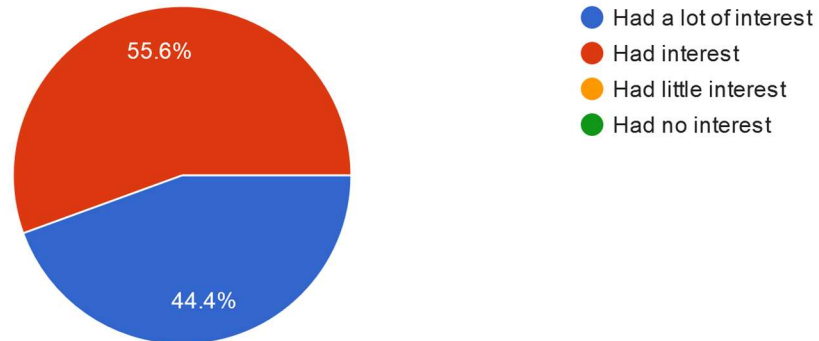
Plant resistance inducers

18 responses



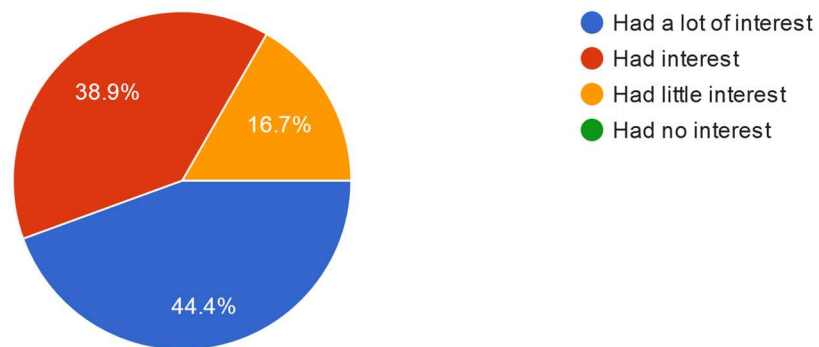
Methodology to quantify defense gene expression in plant by qPCR

18 responses



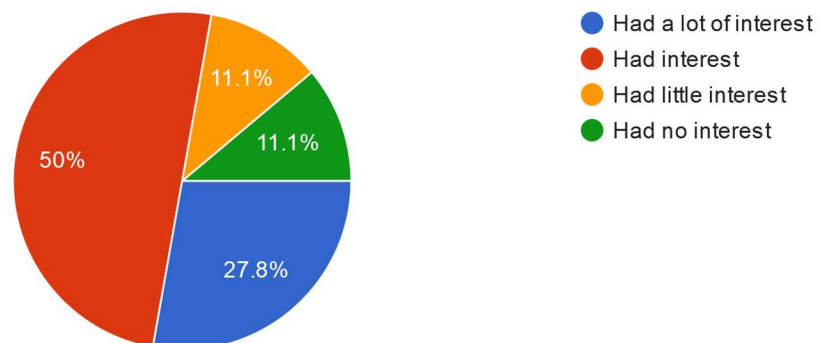
Apple breeding program

18 responses



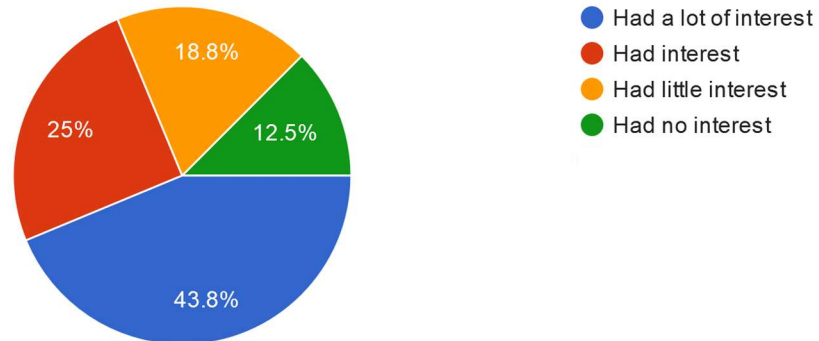
Quantitative Trait Loci detection using RGTL

18 responses



Visit of the tropical greenhouse of the National Museum of Natural History

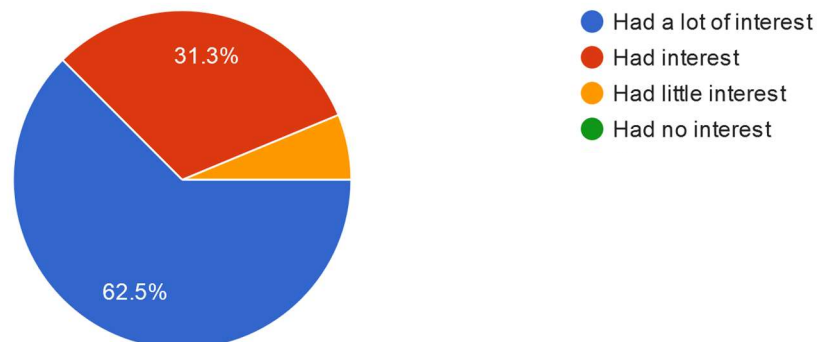
16 responses



Third week: 8th – 12th July

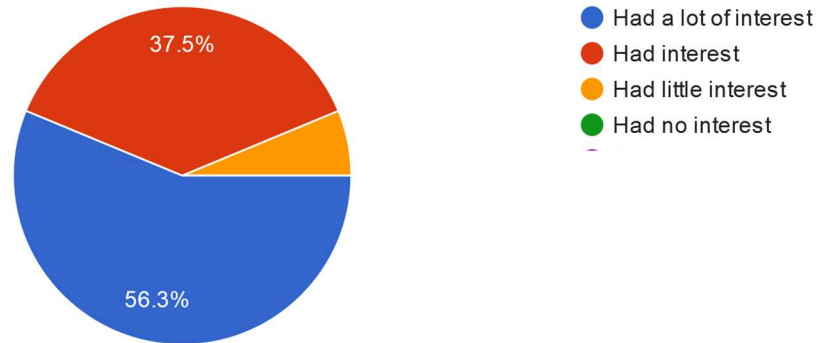
Workshop: Analytical and sensory methods to assess fruit quality

16 responses



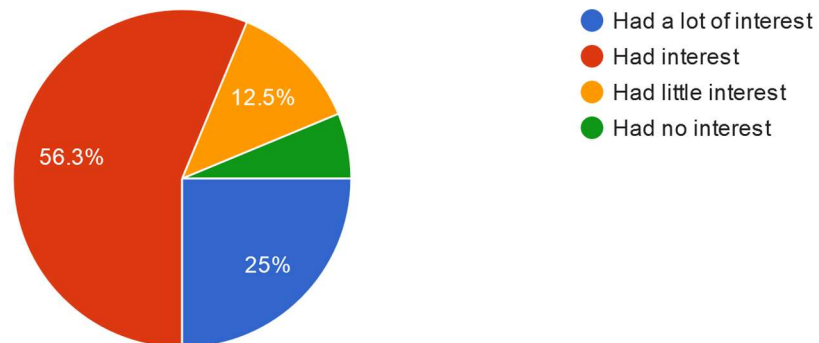
Oral presentation of the students works and projects

16 responses



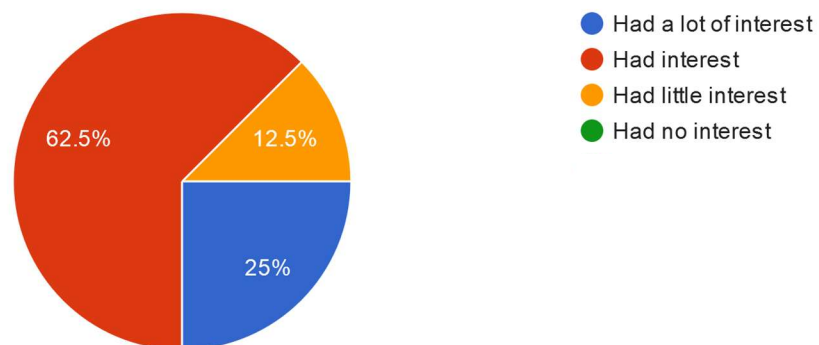
Stimulants dependent germination of parasitic plants: from understanding to leverage

16 responses



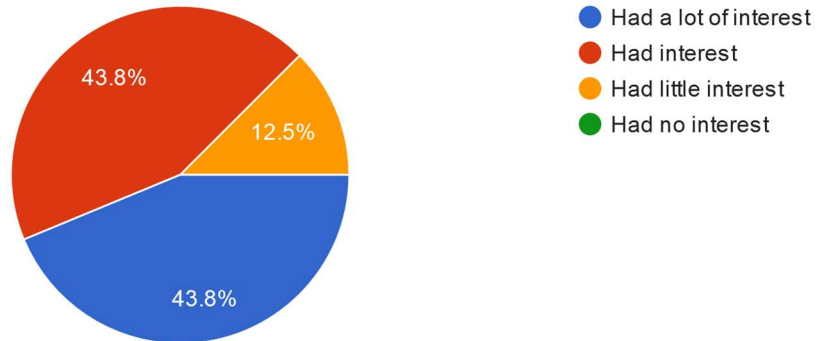
Workshop presentation

16 responses



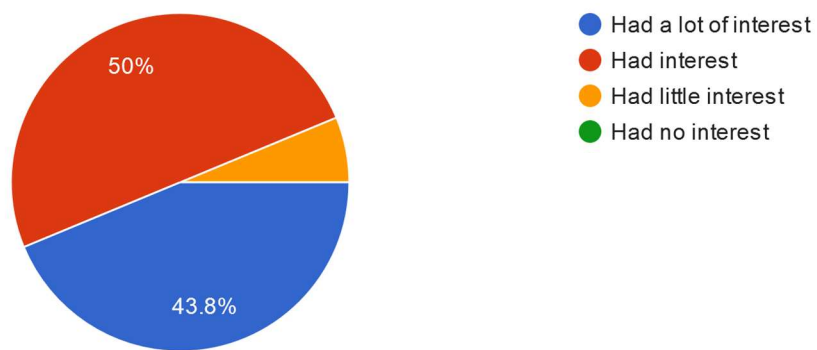
Workshop: parasitic plant seed preparation

16 responses



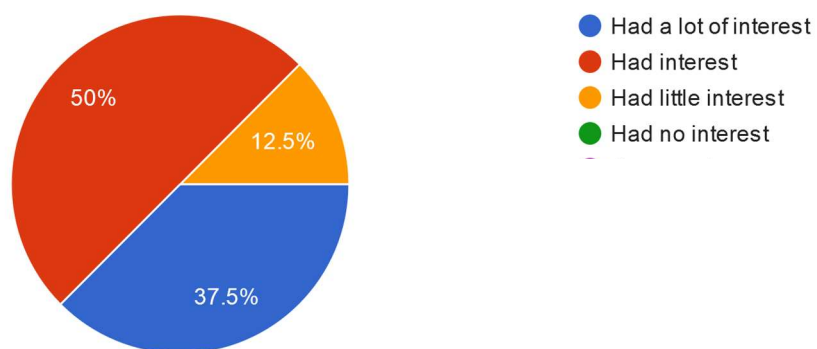
Parasitic plant seed germination: a Strigolactone Bioassay

16 responses



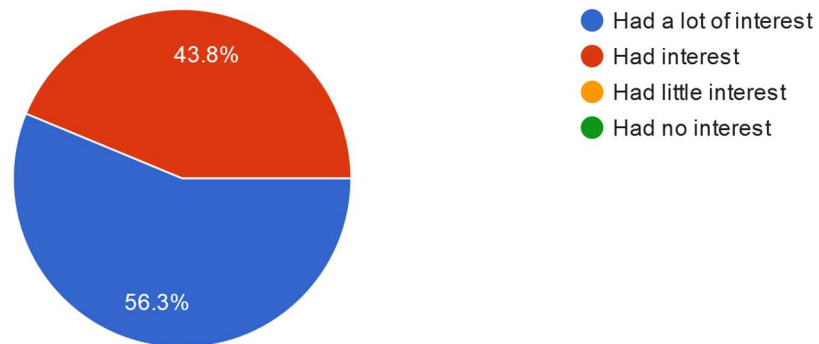
Parasitic plants - host plant interaction: minirhizotron experiment

16 responses



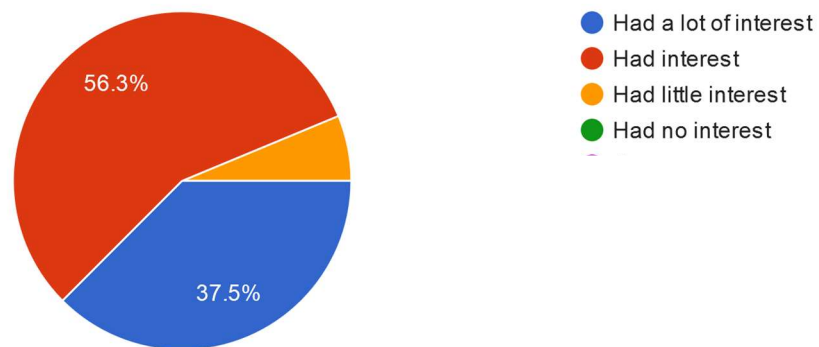
Seed quality session / Conference : Introduction to seed biology

16 responses



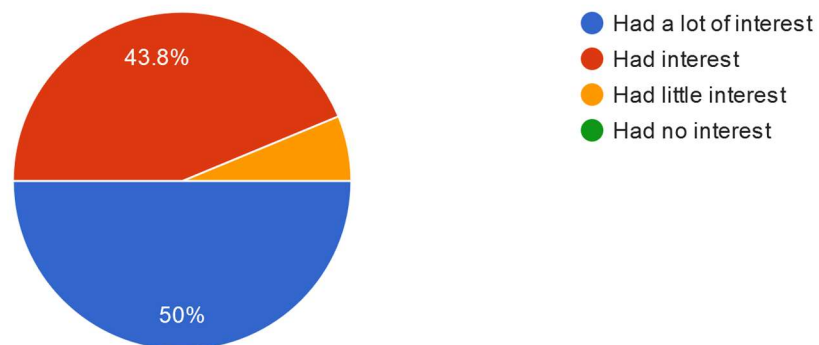
The secrets of eternal life: anhydrobiosis

16 responses



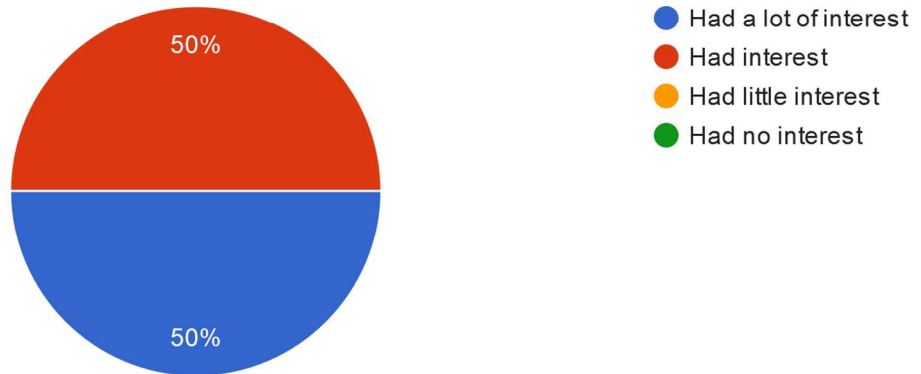
Conference: Seeds capsule of time (seed conservation)

16 responses



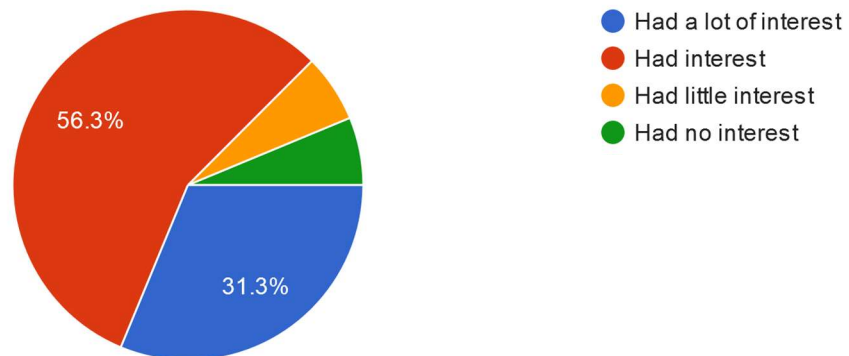
Conference: Impact of abiotic stresses on seed quality, J. Verdier

16 responses



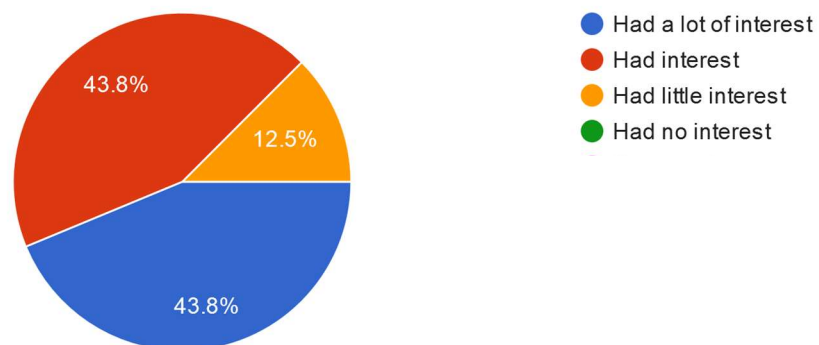
Visit of a seed company (Vilmorin, La Méniltré, Pierre Ferraton)

16 responses



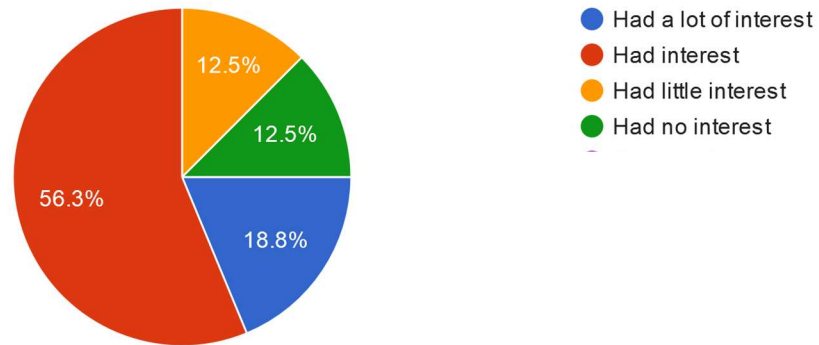
Conference (invited speaker) : Maternal effects in seeds

16 responses



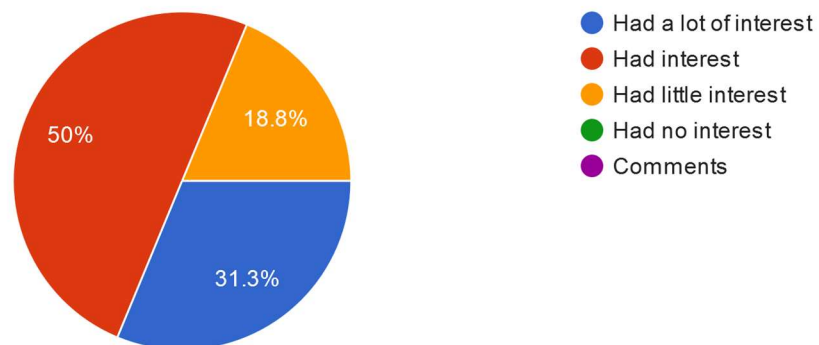
Visit: Activities of the Variety and Seed Study and Control Group, Isab Perrot

16 responses



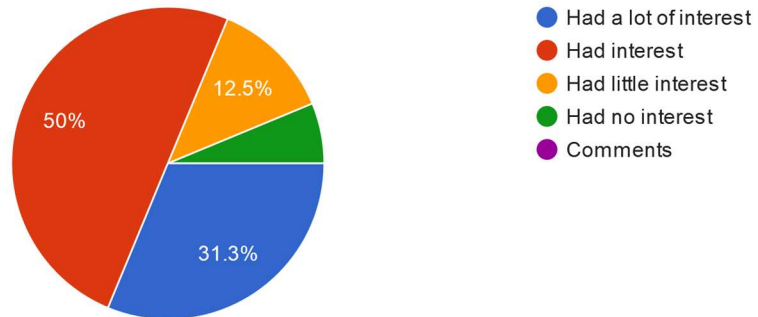
Conference : Processes involved in assembly of the seed microbiota, M. Barret

16 responses



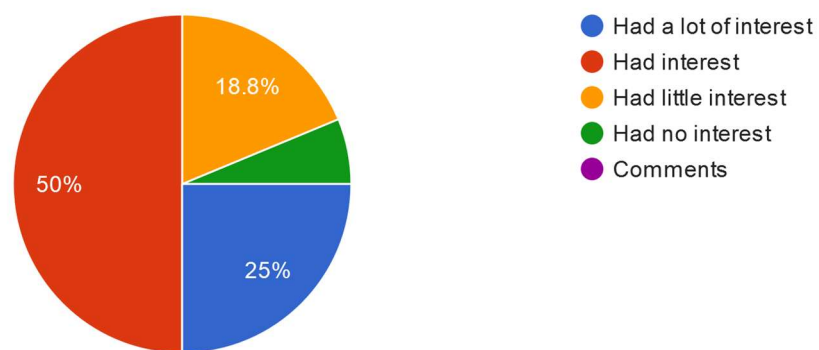
Workshop : Phenotyping -Image analysis and study of germination, Didier Demilly

16 responses



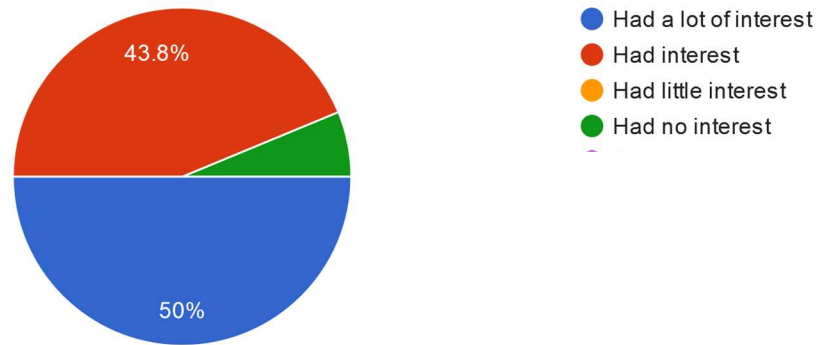
Visit of Phenotic facilities, Didier Demilly

16 responses



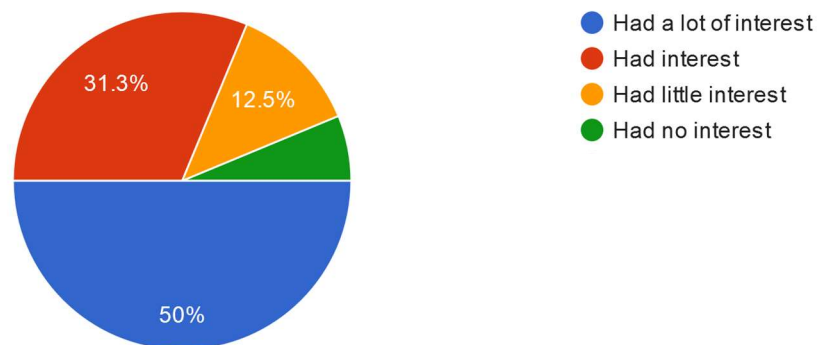
Visit of iteipmai -The French research institute for perfume, medicinal and aromatic plants

16 responses



Visit of an old rose garden (Roses Loubert, Rosiers s/ Loire)

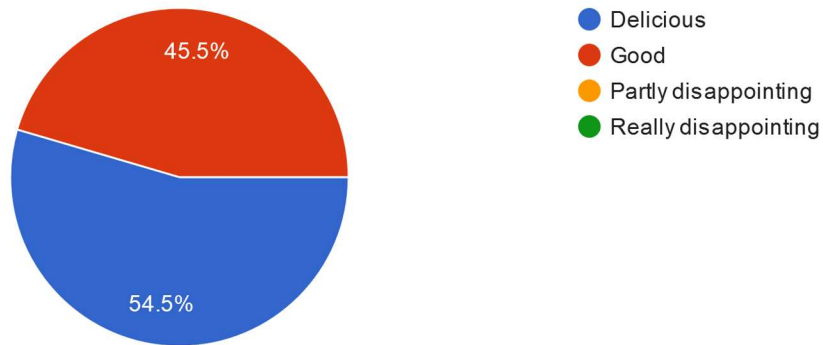
16 responses



Social program feedback

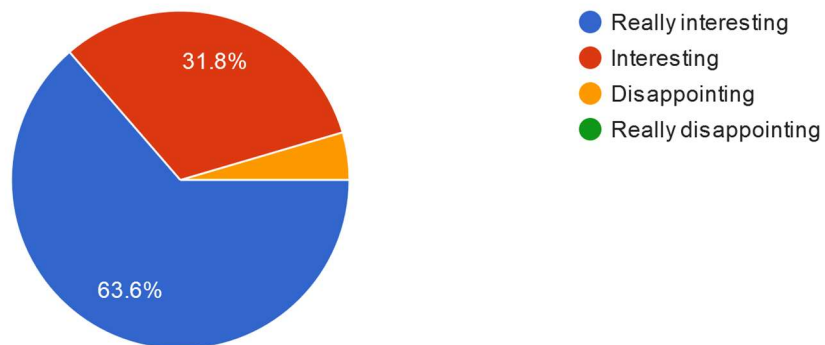
The welcome lunch was :

22 responses



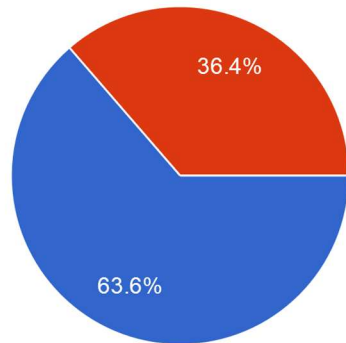
The guided tour of Angers

22 responses



Wine tasting

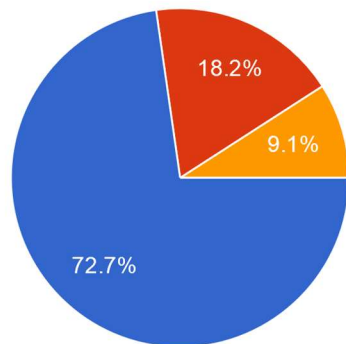
22 responses



- Really interesting
- Interesting
- Disappointing
- Really disappointing

Kayak

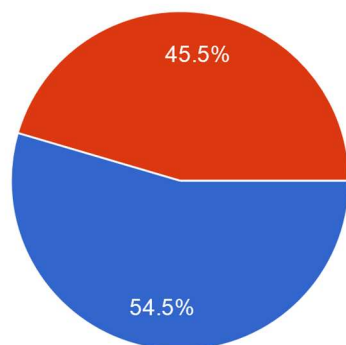
22 responses



- Great
- Nice
- Disappointing
- Really disappointing

Bowling

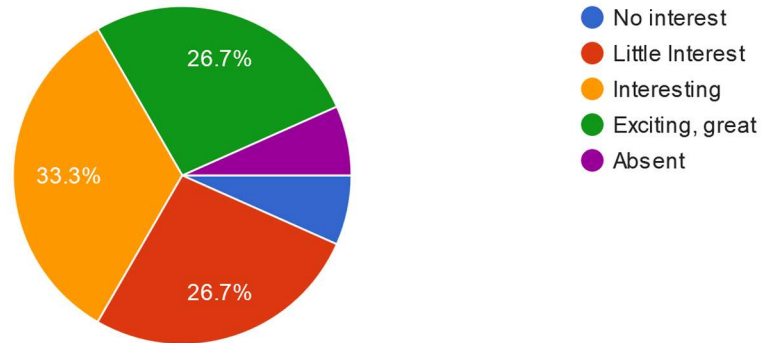
22 responses



- Great
- Nice
- Disappointing
- Really disappointing

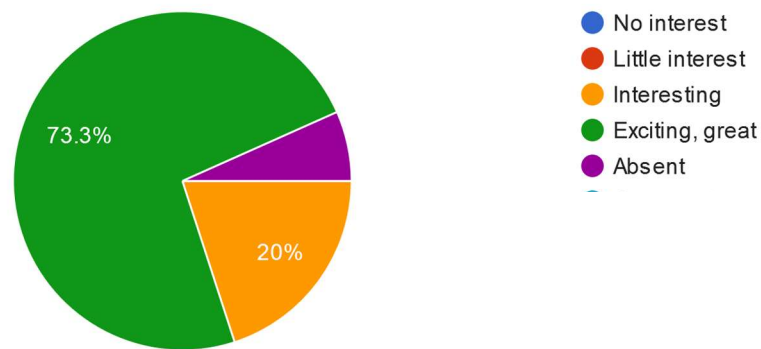
What do you think about your day at La Baule

15 responses



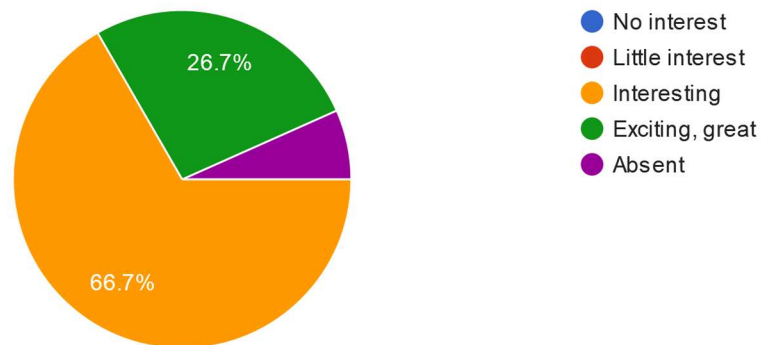
What do you think about your day at Terra Botanica

15 responses



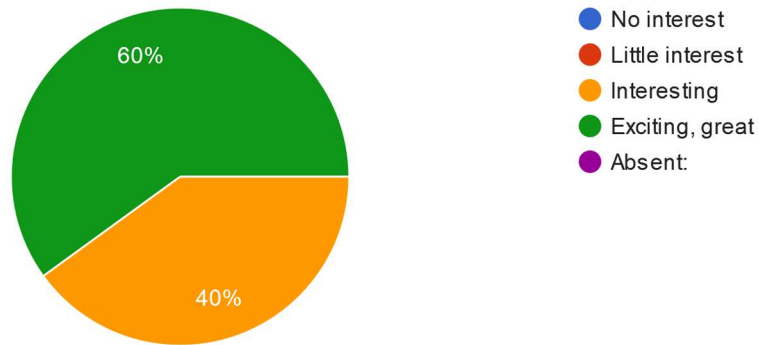
What do you think about the evening activities organised at Parc Balzac

15 responses



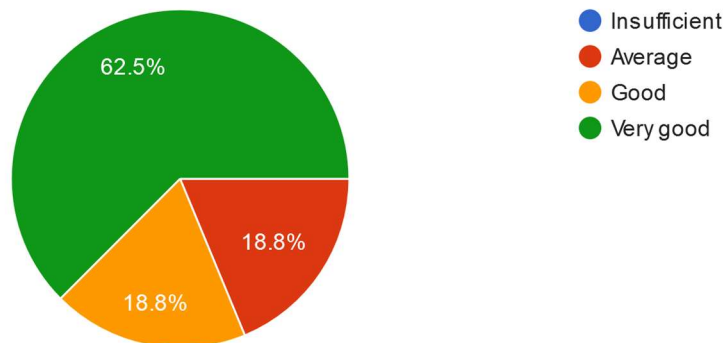
What do you think about your evening night with Greenyd Students at La Reserve restaurant

15 responses



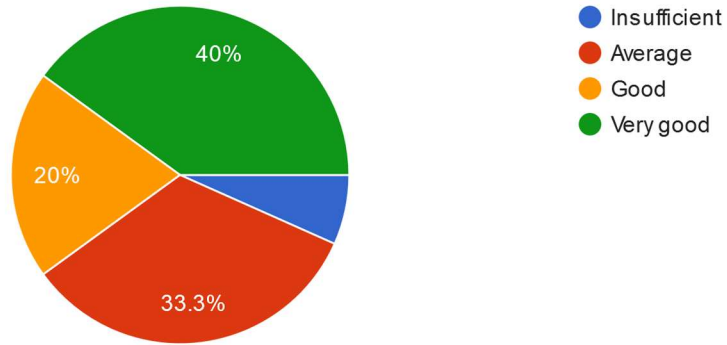
What did you think about your free time in Paris on the 5th of July ?

16 responses



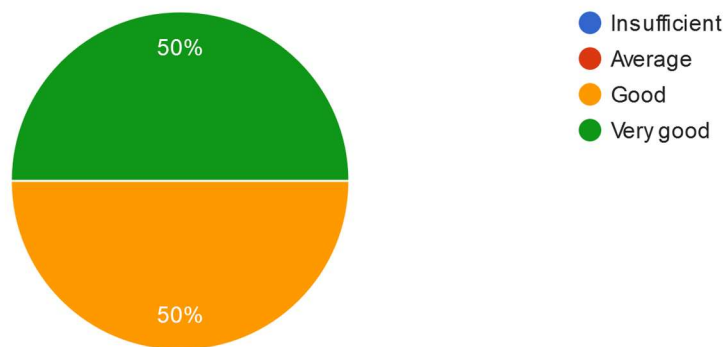
What did you think about the Bistrot Bigo where you eat in the evening in Paris ?

15 responses



What did you think about the Guinguette near the Loire river on Wednesday night ?

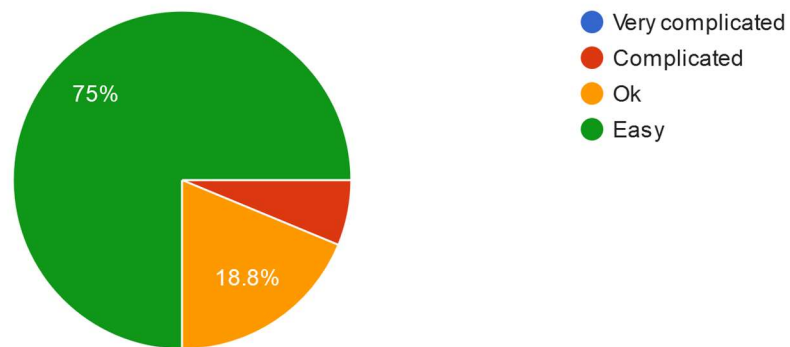
14 responses



General feedback

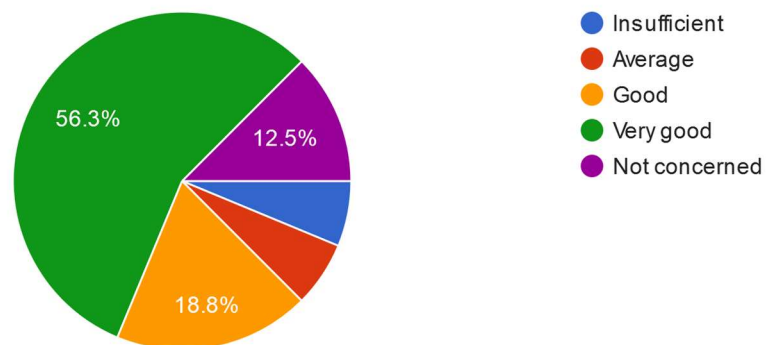
How would you rate the application procedure and your contacts before your arrival ?

16 responses



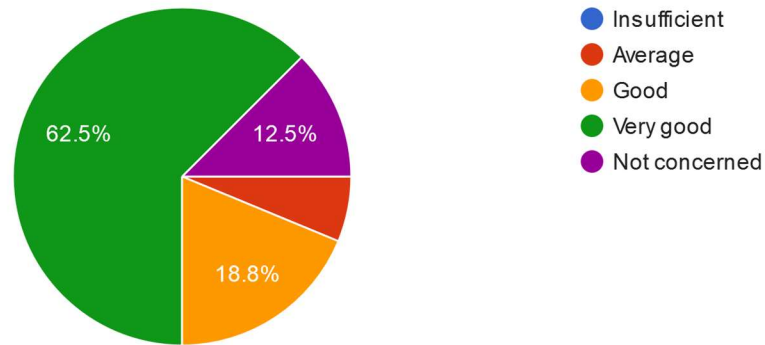
What did you think about the welcome arrival at the Charles de Gaulle airport on the 22nd of June ?

16 responses



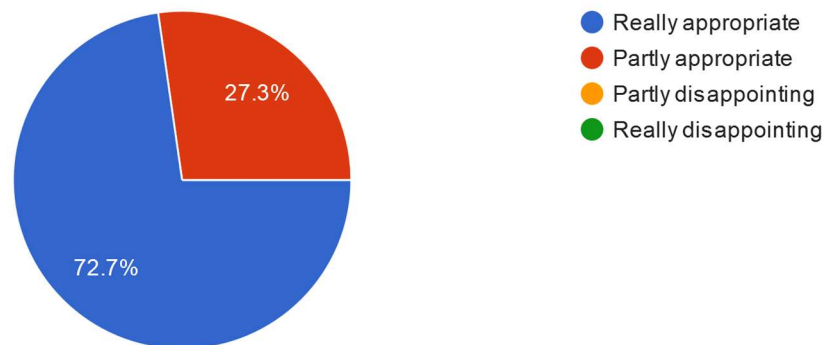
What did you think about the welcome arrival at the Angers train station on the 22nd of June ?

16 responses



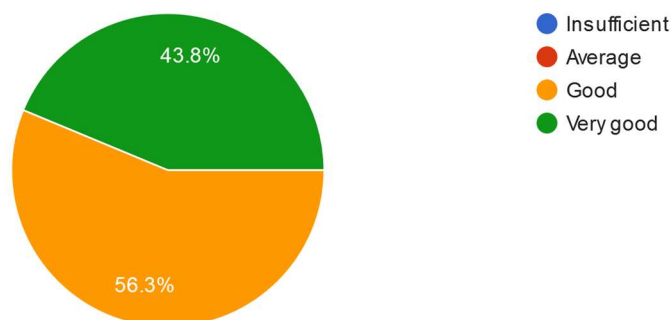
The opening ceremony was :

22 responses



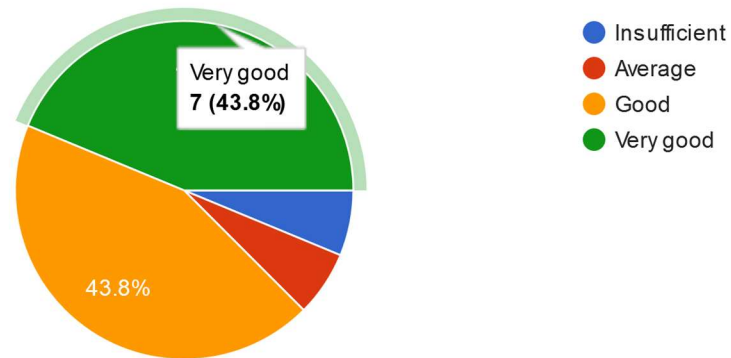
What did you think about the goodies you received during the opening ceremony ?

16 responses



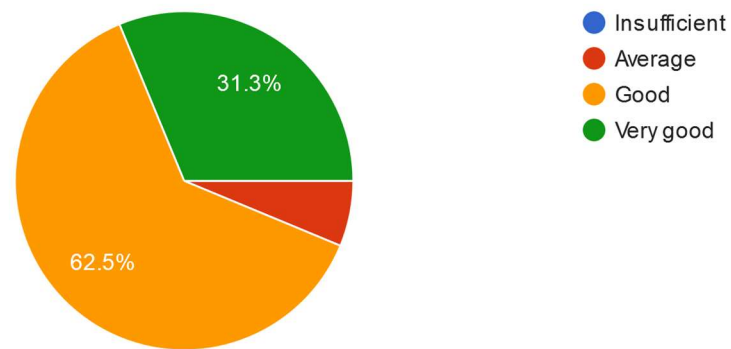
How would you rate the accomodation in Angers ?

16 responses



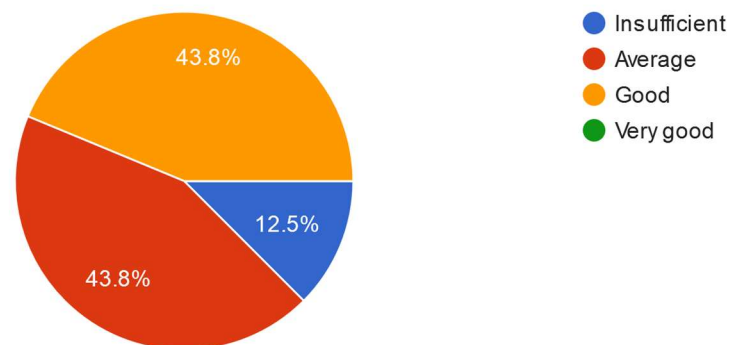
How would you rate the lunches during the Summer Schools ?

16 responses



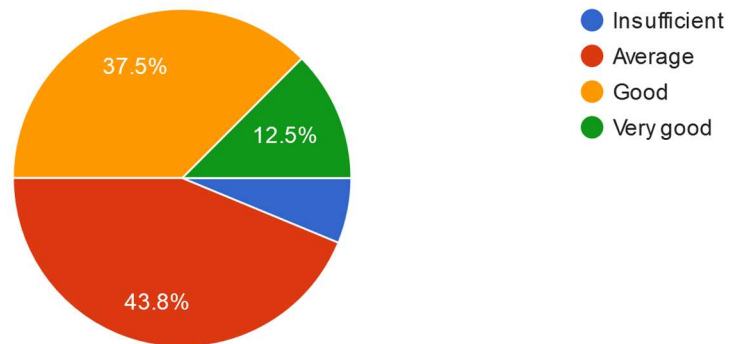
How would you rate the breakfast ?

16 responses



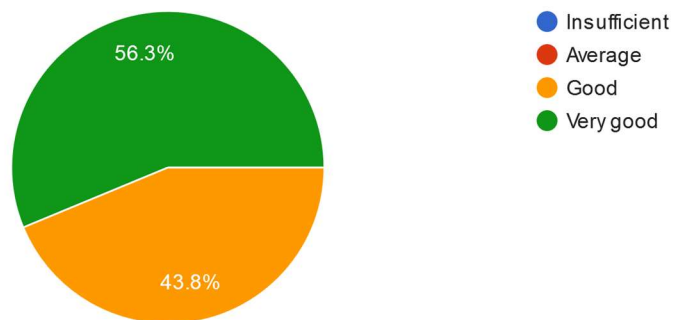
How would you rate the dinner at Foyer Darwin ?

16 responses



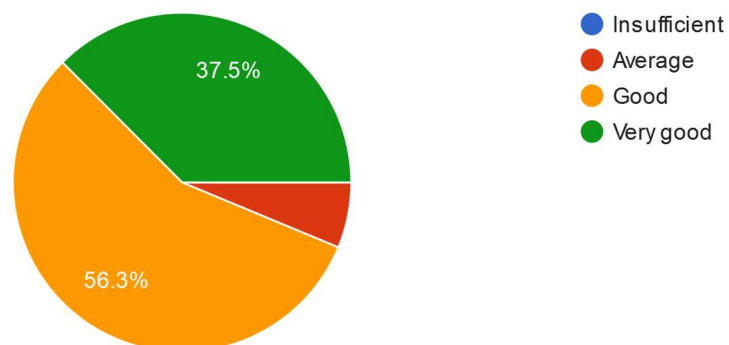
How would you rate the staff availability during the Plant Summer School ?

16 responses



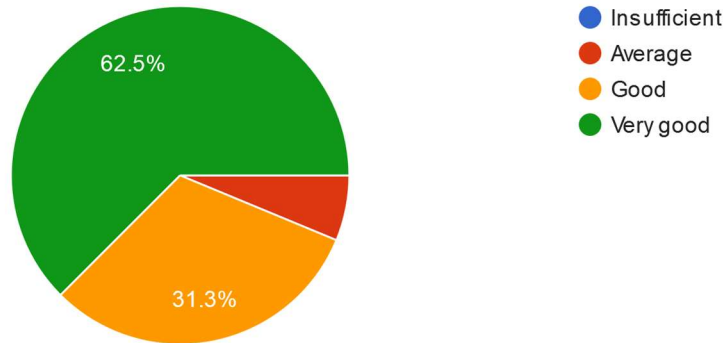
How would you rate the contacts with the speakers and opportunities for interaction ?

16 responses



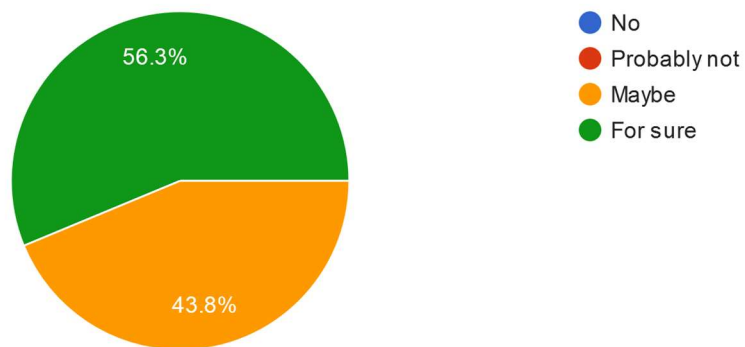
How would you rate Plant Health and Quality Summer School overall ?

16 responses



Would you advise one of your friends to attend the Plant Summer School ?

16 responses



Partners



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