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| Monday  11th Dec | Activity/topic | Tea-cher | Room |
| 09.00-09.30 | Introduction to the course. Including ice-breaking session. | HH/ ME/ AG | C120 |
| 09.30-10.00 | Global uptake of GM crops. Perspective from the EU | HH | C120 |
| 10.00-10.50 | Overview, discovery, potential of RNAi | ME | C120 |
| 10.50-11.10 | Break |  |  |
| 11.10-12.00 | Molecular basis and principles of RNAi | AG | C120 |
| 12.00-13.30 | Lunch at Kartano restaurant |  |  |
| 13.30-14.30 | **Laboratory class – Suppression of nematode genes by exogenous RNAi** | ME | C134 |
| 14.30-15.30 |
| 15.30-16.30 |
| Tuesday  12th Dec |  |  |  |
| 09.00-09.50 | RNAi for control of gene expression in plants | AG | C336 |
| 09.50-10.40 | Food security, wastage, pesticides and herbicides | ME | C336 |
| 10.40-11.10 | Break |  |  |
| 11.10-12.00 | Engineer transgenic crops for RNAi expression | AG | C336 |
| 12.00-13.30 | Lunch at Cafeteria in Biocenter 1 (sandwich and drink) |  |  |
| 13.30-17.00 | **Student presentations**  13:30-13:45 Lampi, Mirka: Gillet et al (2017) Investigating engineered ribonucleoprotein particles to improve oral RNAi delivery in crop insect pests. Frontiers in Physiology, 8, 1-14. doi:10.3389/fphys.2017.00256  13:45-14:00 Hirvisalo, Elina: June-Sun Yoon, Dhandapani Gurusamy, Subba Reddy Palli, Accumulation of dsRNA in endosomes contributes to inefficient RNA interference in the fall armyworm, Spodoptera frugiperda, In Insect Biochemistry and Molecular Biology, Volume 90, 2017, Pages 53-60, ISSN 0965-1748, https://doi.org/10.1016/j.ibmb.2017.09.011  14:00-14:15 Laaksonen, Leo: Yu et al (2013) Delivery of dsRNA for RNAi in insects: an overview and future direction. Insect Science, 20(1), 4-14.  14.15-14.30 Question-answer-session  **14.30-14:45 BREAK**  14:45-15:00 Aneth David Mwakilili: G. Yang, M.-S. You, Y.-Y. Zhao, C.-H. Liu, RNA interference in insects, Acta Entomologica Sinica 52, (2009**)**  15:00-15:15 Sigmar, Naudi: D.R.G. Price, J.A. Gatehouse, RNAi-mediated crop protection against insects, Trends in Biotechnology 26, (2008)  15:15-15:30 Pekonen, Assia: Jiang Zhang, Sher Afzal Khan, David G. Heckel, Ralph Bock, Next-Generation Insect-Resistant Plants: RNAi-Mediated Crop Protection, In Trends in Biotechnology, Volume 35, Issue 9, 2017, Pages 871-882, ISSN 0167-7799, https://doi.org/10.1016/j.tibtech.2017.04.009  **15.30-15.45 Break**  15:45-16:00 Raimets, Risto: Yu, N., Christiaens, O., Liu, J., Niu, J., Cappelle, K., Caccia, S., Huvenne, H. and Smagghe, G. (2013), Delivery of dsRNA for RNAi in insects: an overview and future directions. Insect Science, 20: 4–14. https://doi.org/10.1111/j.1744-7917.2012.01534.x  16:00-16:15 Ravander, Jaana:  Aaron M. Shew, Diana M. Danforth, Lawton L. Nalley, Rodolfo M. Nayga, Francis Tsiboe, Bruce L. Dixon, New innovations in agricultural biotech: Consumer acceptance of topical RNAi in rice production, In Food Control, Volume 81, 2017, Pages 189-195, ISSN 0956-7135, https://doi.org/10.1016/j.foodcont.2017.05.047    16:15-16:30 Wang, KunQi: Huifang Song, Jianqin Zhang, Daqi Li, Anastasia M.W. Cooper, Kristopher Silver, Tao Li, Xiaojian Liu, Enbo Ma, Kun Yan Zhu, Jianzhen Zhang, A double-stranded RNA degrading enzyme reduces the efficiency of oral RNA interference in migratory locust, In Insect Biochemistry and Molecular Biology, Volume 86, 2017, Pages 68-80, ISSN 0965-1748,  16:30-16:45: Wasonga, Daniel: Hokkanen, Heikki and Menzler-Hokkanen, Ingeborg (2017): Integration of Genetically Modified Crop Traits in Agroecological Practices in Europe: a critical review, (book chapter)  16.45-17.00 Question-answer-session | HH  ME | C120 |
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| Wednesday  13th Dec | NOTE: morning session is in seminar room 13, B-talo |  |  |
| 09.00-09.50 | IPM and Novel control strategies for insect control | AG | B-S13 |
| 09.50-10.40 | RNAi in insects | AG | B-S13 |
| 10.40-11.10 | Break |  |  |
| 11.10-12.00 | RNAi in insects continued | AG | B-S13 |
| 12.00-13.30 | Lunch at Kartano restaurant |  |  |
| 13.30-14.30 | Basics of trap cropping | HH | C336 |
| 14.30-16.30 | Exercise: trap cropping as a delivery platform for RNAi-based target control of the pollen beetle. Why would trap cropping in combination with RNAi work better than with pesticides? | IMH | C336 |
| Thursday  14th Dec |  |  |  |
| 09.00-09.50 | RNAi in crops for control of insect pests | ME | C336 |
| 09.50-10.40 | Bacterial mediated RNAi | AG | C336 |
| 10.40-11.10 | Break |  |  |
| 11.10-12.00 | Determining the success of RNAi | AG | C336 |
| 12.00-13.30 | Lunch at Kartano restaurant |  |  |
| 13.30-14.30  14.30-15.30 | **Laboratory class – results and discussions** | ME | C134 |
| 15.30-15.45 | Break |  |  |
| 15.45-17.00 | **Writing of abstract for nematode exercise** |  | C120 |
| 17.00-17.45 | Get together | C-talo,  social room, 1st floor | |
| Friday  15th Dec |  |  |  |
| 09.00-09.10 | Introduction of new main teacher | HH | C336 |
| 09.10-10.00 | Microbiological safety assessment: regulatory science and policy issues regarding beneficial micro-organisms.  10:00-10:15 Amoah, Samuel: Köhl et al. (2011): Stepwise screening of microorganisms for commercial use in biological control of plant -pathogenic fungi and bacteria  10:15-10:30 Jekaterina, Aid: Sven Ove Hanson (2016): How to be Cautious but Open to Learning: Time to Update Biotechnology and GMO Legislation, and  Ingvar Sundh and Mark S. Goettel (2013): Regulating biocontrol agents: a historical perspective and a critical examination comparing microbial and macrobial agents  10:30-10:45 Barbero-Lopez, Aitor: Harnessing the value of beneﬁcial micro-organisms: role of regulatory landscapes – Mini Review, Ingvar Sundh, Andrea Wilcks and Mark S. Goettel | IS | C336 |
| 10.45-11.00 | Break |  |  |
| 11.00-11.15 | “Question-answer” session |  |  |
| 11.15-12.00 | Commercialisation and product development aspects | IS | C336 |
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| 12.00-13.30 | Lunch at Kartano restaurant |  |  |
| 13.30-15.30 | **Student examination, final exam** | ME/ AG/ IS/HH | C336 |
| IMH |
| 15.30-15.45 | Break | IMH | C336 |
| 15.45-16.15 | Course evaluation |  |  |
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Extra page for notes