



JANUARY 2019

Editorial

The world production and consumption of oilseeds continue to increase. While total production was 574 million tons (MT) in 2017/18 it is estimated to be about 600 MT in 2018/19, i.e. +5.2%. Whereas this extension is mainly due to larger global soybean production, rapeseed crop is expected to drop from 74 MT to approx. 71 MT (<https://apps.fas.usda.gov/>).

This decline of global OSR production can be partly attributed to severe weather conditions in parts of the world, particularly Europe. High temperatures combined with missing precipitation all over central Europe have caused disappointing rapeseed yields, e.g. in north-eastern Germany. So much the worse, continued drought has impeded winter-OSR sowing so that the actual cultivation and harvest area in 2019 will be substantially reduced.

In addition, farmers have been confronted with other challenges in OSR cultivation. One is the growing problem of diseases and insect pests causing yield losses. This issue is partly due to high share of OSR in crop rotations. Simultaneously, in Europe, chemical plant protection is increasingly impeded by regulatory decisions leading to the decline of chemical plant protection agents; this situation is seriously threatening OSR cultivation. Especially in this area, breeding activities need to be strengthened to form the basis for more resilient varieties.



In this dangerous position, positive impulses are urgently needed to stimulate the interest in growing, processing and using rapeseeds in food, feed and other industries. Scientific research is increasingly requested to develop and provide new solutions for agronomy (e.g. resource efficiency, sustainable crop rotations), disease and pest control, as well as alternative uses of rapeseed oil and protein (human consumption) and respectively open new markets in the world.

The 15th Rapeseed Congress 2019 will form an appropriate forum for presenting solutions in these and other fields, and to discuss proven and new approaches for a promising and successful future of oilseed rape/canola.

Wolfgang Friedt, GCIRC President

Activity/ News of the association:

The 15th International Rapeseed Congress, Berlin, June 16-19, 2019,

Venue: Berlin Congress Center (bcc), Alexanderplatz, Berlin ; "Flowering for the Future".

<https://www.irc2019-berlin.com/>

Call for papers deadline: January 31st!

2nd Meeting of the IRC Steering Committee, 29 October 2018, Berlin

The Chairman welcomed the members of the Steering Committee (SC) in UFOP's committee's office and introduced the meeting agenda.

As a first agenda item, members of the Local Organizing Committee (Core Team, CT) reported on the state of planning the IRC 2019, and subsequently, the projected structure of the congress programme, incl. plenary and thematic sessions (keynotes and contributed papers) as well as workshops. Members of the SC commented on the current state of planning. In particular, highly valuable suggestions on the workshop programme were recorded. As another major part of the programme excursions and field tours to different destinations were presented and additional recommendations made by members of the SC.

Next, the SC was informed on major financial aspects, incl. estimation of the congress budget, state of sponsoring, and the participation fees.

Further steps comprise, e.g. the promotion and marketing of the IRC 2019 : actual activities and further plans were presented. Again, members of the SC advised the local team and made valuable suggestions regarding these items.

Finally, miscellaneous items included the further development of the IRC website and the state of the call for papers as well as abstract submissions.



Scientific news

Brassica 2018. The 21st Crucifer Genetics Conference has been held in Saint-Malo, France, 1-4 July 2018.



This scientific event was organized by the Institute for Genetics, Environment and Plant Protection (IGEPP), a joint research unit consisting of INRA, Agrocampus Ouest and the University of Rennes1 and welcomed more than 200 attendees from 20 countries. The conference covered aspects of **genetics and genomics in all *Brassica* species**, from basic to applied research, and was organized on the basis of 5 sessions and 2 workshops:

S1: Genome organization and genome editing

S2: Genetic diversity, epigenetics, breeding and biotechnology

S3: Nutrient use efficiency, abiotic stress tolerance

S4: Next generation phenotyping, plant growth and development

S5: Seed and product quality, phytochemicals

S6: Pathogen and insect resistance, biocontrol, crop protection

Workshop: 'Idea Cafe_blackleg R-gene nomenclature'

Workshop: NUE

At total, 8 keynotes, 32 oral presentations and 17 fast presentations have been offered.

Posters and abstracts available on <https://colloque.inra.fr/brassica2018/>

2018 International Clubroot Workshop: Program Booklet, Abstracts and Presentations

The Canola Council of Canada has posted the program booklet, abstracts and keynote speaker presentations at clubroot.ca for you to download and review. Please note that all 51 abstracts have been submitted to the Canadian Phytopathological Society for publication and will likely be published in the March 2019 issue. <https://www.canolacouncil.org/canola-encyclopedia/diseases/clubroot/research/#icw2018>



AusCanola 2018 - 20th Australian Research Assembly on Brassicas, 2018.



See Value Chain and Regional News.

Papers from the conference can be found at:

www.australianoilseeds.com/conferences_workshops/ARAB/AusCanola_2018

Publications:

BREEDING

Akeel Mohammed, Mingpei You, Banga S. S. Banga, Martin J. Barbetti . Resistances to downy mildew (*Hyaloperonospora brassicae*) in diverse Brassicaceae offer new disease management opportunities for oilseed and vegetable crucifer industries. October 2018. European Journal of Plant Pathology. <https://doi.org/10.1007/s10658-018-01609-7>

Sophie Jasinski, Fabien Chardon, Nathalie Nesi, Alain Lécureuil and Philippe Guerche. 2018. Improving seed oil and protein content in Brassicaceae: some new genetic insights from *Arabidopsis thaliana*. OCL. <https://doi.org/10.1051/ocl/2018047>

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Philipp E. Bayer, David Edwards, Jacqueline Batley (2018). Bias in resistance gene prediction due to repeat masking. October 2018. Nature Plants 4(10) <https://doi.org/10.1038/s41477-018-0264-0/>

John Hamblin, Martin J.Barbetti, Katia Stefanova, Freda Blakeway, Jon Clements, Wallace Cowling, Yiming Guo, Philip Nichols Crop breeding to break nexus between bee decline/food production? (2018). Global Food Security, Vol 19, December 2018, pp 56-63. <https://doi.org/10.1016/j.gfs.2018.09.003> or https://www.researchgate.net/publication/328556253_Crop_breeding_to_break_nexus_between_bee_declinefood_production

Jinghua Yang, Dongyuan Liu, Xiaowu Wang, Changmian Ji, Feng Cheng, Baoning Liu, Zhongyuan Hu, Sheng Chen, Deepak Pental, Youhui Ju, Pu Yao, Xuming Li, Kun Xie, Jianhui Zhang, Jianlin Wang, Fan Liu, Weiwei Ma, Jannat Shopan, Hongkun Zheng, Sally A Mac-



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- Harsh Raman, Rosy Raman, Simon Diffey, Yu Qiu, Brett McVittie, Denise Maria Barbulescu, Phil Anthony Salisbury, Steve Marcroft and Regine Delourme. Stable Quantitative Resistance Loci to Blackleg Disease in Canola (Brassica napus L.) Over Continents. Front. Plant Sci., 23 November 2018 | <https://doi.org/10.3389/fpls.2018.01622>
- Armin Scheben, Brent Verpaalen, Cynthia Taylor Lawley, Kenneth Chon-Kit Chan, Philipp Bayer, Jacqueline Batley, David Edwards. CropSNPdb: a database of SNP array data for Brassica crops and hexaploid bread wheat. The plant Journal Dec 2018. <https://doi.org/10.1111/tpj.14194>
- Rout K, Yadav BG, Yadava SK, Mukhopadhyay A, Gupta V, Pental D and Pradhan AK (2018). QTL Landscape for Oil Content in Brassica juncea: Analysis in Multiple Bi-Parental Populations in High and “0” Erucic Background. Front. Plant Sci. 9:1448./ <https://doi.org/10.3389/fpls.2018.01448>
- Miladinović Dragana, Miler Marko, Marjanović-Jeromela Ana, Imerovski Ivana, Dimitrijević Aleksandra, Kovačević Branislav, Jocić Siniša, Cvejić Sandra, Hladni Nada, Obreht-Vidaković Dragana (2018). Evaluation of RAPD markers as a marker-assisted selection tool for variety type and erucic acid content in rapeseed. September 2018 Genetika 50(2):421-430 . <https://doi.org/10.2298/GENSR1802421M>
- Fiebelkorn, D., Horvath, D. & Rahman, M. Genome-wide association study for electrolyte leakage in rapeseed/canola (Brassica napus L.)Mol Breeding (2018) 38: 129. <https://doi.org/10.1007/s11032-018-0892-0>

BOOK:

- The Brassica napus Genome.** Editors: Shengyi Liu, Rod Snowdon, Boulos Chalhoub. 16 chapters. Springer 2018 <https://doi.org/10.1007/978-3-319-43694-4>

CROP PROTECTION

- Matthew Denton-Giles , Mark C. Derbyshire , Yuphin Khentry, Lone Buchwaldt, Lars G. Kamphuis. Partial stem resistance in Brassica napus to highly aggressive and genetically diverse Sclerotinia sclerotiorum isolates from Australia. Canadian Journal of Plant Pathology 2018. <https://doi.org/10.1080/07060661.2018.1516699>
- Müller, C., Schulz, M., Pagnotta, E. et al. The Role of the Glucosinolate-Myrosinase System in Mediating Greater Resistance of Barbarea verna than B. vulgaris to Mamestra brassicae Larvae. J Chem Ecol (2018). <https://doi.org/10.1007/s10886-018-1016-3>
- Lydie Kerdraon, Marie-Helene Balesdent, Matthieu Barret, Valerie Laval, Frederic Suffert (2018). Crop residues in wheat-oilseed rape rotation system: a pivotal, shifting platform for microbial meetings (Pre-print). doi: <https://doi.org/10.1101/456178>



Unnati A. Shah, Ioly Kotta-Loizou, Bruce D. L. Fitt and Robert H. A. Coutts. Identification, Molecular Characterization, and Biology of a Novel Quadrivirus Infecting the Phytopathogenic Fungus *Leptosphaeria biglobosa*. *Viruses* 2019, 11, 9; <https://doi.org/10.3390/v11010009>

AGRONOMY

Hannes Hegewald, Monika Wensch-Dorendorf, Klaus Sieling, Olaf Christen (2018). Impacts of break crops and crop rotations on oilseed rape productivity: A review. *European Journal of Agronomy* 101:63-77. <https://doi.org/10.1016/j.eja.2018.08.003>

Krzysztof J. Jankowski,* Mateusz Sokólski, Bożena Bogucka, and Bogdan Dubis. Micro-Granulated Starter Fertilizer Effects on Growth and Productivity of Winter Oilseed Rape. *Agron. J.* 110:2250–2258 (2018). <https://doi.org/10.2134/agronj2018.01.0046>

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PROCESSING and USES

Saeed Ghobadi, Zahra Hassanzadeh-Rostami, Fatemeh Mohammadian, Morteza Zare & Shiva Faghieh (2018). Effects of Canola Oil Consumption on Lipid Profile: A Systematic Review and Meta-Analysis of Randomized Controlled Clinical Trials. *Journal of the American College of Nutrition*. <https://doi.org/10.1080/07315724.2018.1475270>

Christoph Hald, Corinna Dawid, Ralf Tressel, and Thomas Hofmann. Kaempferol 3-O-(2''-O-Sinapoyl- β -sophoroside) Causes the Undesired Bitter Taste of Canola/Rapeseed Protein Isolates. *Journal of Agricultural and Food Chemistry* 2018. <https://doi.org/10.1021/acs.jafc.8b06260>

ECONOMY and MARKET

No recent references identified in the database.

MUSTARD and Other Brassicae

Abdelghanl Nabloussi, Angustias Márquez-Lema, José M.Fernández-Martínez, Leonardo Velasco (2008). Novel seed oil types of Ethiopian mustard with high levels of polyunsaturated fatty acids. *Industrial Crops and Products* Vol 27. <https://doi.org/10.1016/j.indcrop.2007.12.004>

Kadambini Rout, Bal Govind Yadav, Satish Kumar Yadava, Arundhati Mukhopadhyay, Vibha Gupta, Deepak Pental and Akshay K. Pradhan. QTL Landscape for Oil Content in Brassica juncea: Analysis in Multiple Bi-Parental Populations in High and "0" Erucic Background. *Front. Plant Sci.*, 16 October 2018 | <https://doi.org/10.3389/fpls.2018.01448>



Value chains and regional news

1) Australia: AusCanola 2018 - 20th Australian Research Assembly on Brassicas, 2018.

The biennial Australian canola conference, AusCanola2018, was held in Perth on 4-6 September 2018, and attracted 126 delegates from across Australia and internationally. The conference began with a one-day field tour to a major canola trial site at Cunderdin, in Western Australia's central wheat belt, followed by two days of presentations.

The Grain Industry Association of Western Australia and Australian Oilseeds Federation co-hosted the conference, and major sponsor was the Grains Research and Development Corporation. Professor Wallace Cowling, The University of Western Australia (UWA), was Chair of the steering committee and UWA Professor Jacqueline Batley was Chair of the program committee. The field day committee was chaired by Ms Jackie Bucat of the Department of Primary Industry and Regional Development (see photo).



The inaugural Australian canola conference was held in Perth in 1977, when 11 Brassica researchers met at The University of Western Australia to establish the 1st Australian Rapeseed Agronomists and Breeders Research Workshop, led by the late Professor Noel Thurling. From its humble beginnings, the canola industry in Australia now covers more than two million hectares annually.

The involvement and interest of the canola industry was evident in a captivating field tour which included canola variety trials, canola breeding company displays, and a visit to WA No-Till Farmers Association long-term cropping site. A grower-researcher discussion on the second day of the conference provided valuable two-way dialogue between industry and academia. "The calibre of the research findings presented at this conference reflects the evolution of the canola industry in Australia, with canola now worth over \$2 billion to the Australian economy," Professor Cowling said.

Research presented to the conference included findings on canola genomics, breeding for disease and pest resistance, heat and drought tolerant characteristics, and gene editing.

“The canola research community in Australia is a vibrant and globally-connected community which leads the way in developing and extending new canola research, with industry supporting, collaborating and benefiting from this research,” Professor Cowling said.

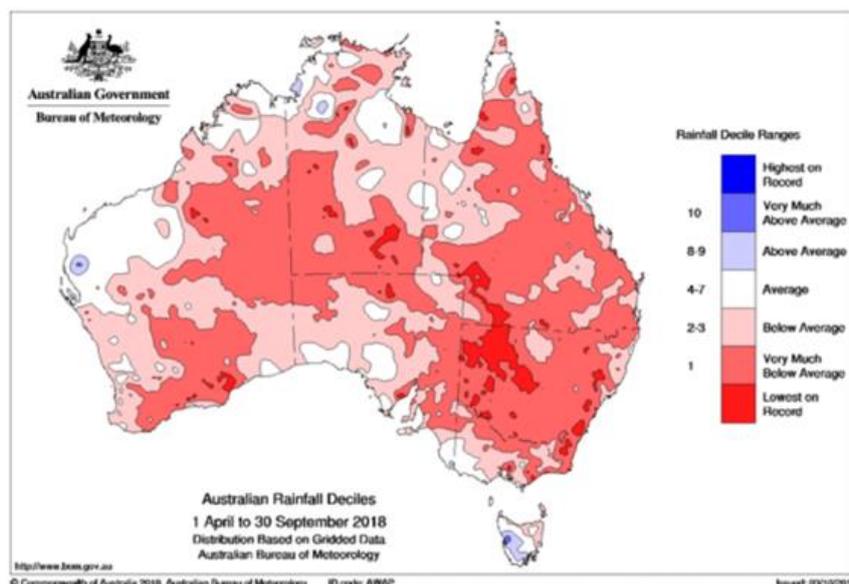
Australian Oilseeds Federation chief executive officer Nick Goddard, said the conference was an opportunity to recognise the significant advances in the industry since the first introduction of rapeseed to Australia in the 1960s. Mr Goddard said “Australia now produces between three and four million tonnes of canola every year, with over two thirds of this tonnage exported around the globe – although drought has greatly reduced production in 2018.”

Assoc Prof Phil Salisbury of The University of Melbourne presented the inaugural Phil Salisbury Early Career Research Award to Ms Lauren Borg, a student from University of Wollongong, acknowledging her research on new methods of data analysis for canola blackleg (Phoma) disease.

See: www.australianoilseeds.com/conferences_workshops/ARAB/AusCanola_2018

2) Canola crops in Australia face harsh weather conditions (source Australian Oilseeds federation Crop report Oct 2018)

Current estimates are indicating the national canola crop to be the smallest since the drought year of 2009 in eastern Australia, and similar to that year Western Australia will produce more than 50% of national production; as much as 70% in 2018. Due to the patchy and late establishment of the crop and the dry season, crops have not grown the biomass they would normally, so yield expectations are lower. The map below indicates how dry the growing season has been through most of the growing regions.



There is a higher level of uncertainty for production in the eastern states due to varying estimates of the amount of area sprayed out, grazed or cut for silage and hay, in a very dry season where severe and widespread frosts reduced yield potential even further in many areas. In addition the variability in yield potential across paddocks, farms and regions is huge depending on whether crops could access deep subsoil water and/or the timing of an extra 20–30 mm from storms. There has been no heat shock stress on crops this season. Any rainfall over the next 2–3 weeks will be critical to determine yield outcomes.

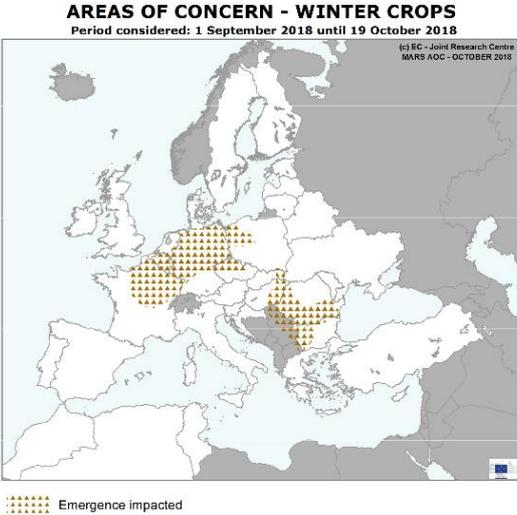
Canola 2018/19

	2017/18 Final		2018/19 Month Estimate	
	Harvested Area (hectares)	Production (tonnes)	Area (hectares)	Production (tonnes)
NSW	600	618	160	140
VIC	450	750	187	250
SA	250	375	150	150
WA	1,347,000	1,900,000	1,090,000	1,420,000
TO-TAL	2,647,000	3,643,000	1,587,000	1,960,000

Source: Industry Estimates, GIWA; PIRSA; NSW DPI

3) European Union (EU): Rapeseed sowing and emergence seriously impacted by drought

According to the October issue of the JRC MARS bulletin, “warmer and substantially drier-than-usual weather conditions in large parts of Europe (...) hampered the sowing and emergence of winter crops.



Sowing and emergence were most affected in central and eastern Germany, western Poland, and northern parts of the Czech Republic. The situation is also delicate in many other parts of western, central and southeastern Europe, who have a significant precipitation deficit. Rapeseed, for which the sowing window was closed, was affected most. (...) Some farmers have sown into the dry soil, while other have either waited for rainfall or opted to sow other crops. In these regions, rapeseed acreages will be significantly reduced.

For more details: <https://ec.europa.eu/jrc/sites/jrcsh/files/jrc-mars-bulletin-vol26-no10.pdf>

The rapeseed yields of the 2017/18 season have also been very much affected (average -13%) by climatic conditions that have hindered the flowering of rapeseed and favored diseases and pests: the 2018 European rapeseed harvest is estimated at 19.826 Mt against 21.983 (-10%) in 2017, in spite of a higher acreage (6.863 Mha against 6.598 in 2017 / +4%).

4) France: Avril group launches a 100% rapeseed biodiesel

The Avril group, the French leader in table oils that also produces biofuels, announced on Nov 8 the launch of a 100% vegetable oil based on rapeseed, the Oleo100. This product will be reserved for fleets and captives, i.e. carriers and communities. It enters the category B100, a type of fuel authorized by a decree of the French Ministry of Ecological Transition published April 7. The order also provides that this fuel "may only be used in professional fleets with specific supply logistics and their own storage and distribution capacities. This plant-based fuel has a very clear effect on the reduction of greenhouse gases compared to petroleum products. Concerning motors, the most advanced manufacturer is Swedish Scania, with 95% of its fleet is available as an option B100, the optional vehicle B100 almost at the same cost compared to a diesel option. According to Avril, all diesel trucks are likely to run with this type of fuel, with minor modifications to the electronic management of the engine.

Upcoming International and national events

21-22 January 2019, 16th international Conference on renewable mobility. Berlin, Germany

<https://www.fuels-of-the-future.com/>

5-7 March, 2019. Canadian crops convention "leading change". Montreal, Canada.

<https://convention.canolacouncil.org/>

5-8 May, 2019: AOCS Annual Meeting, St Louis, Missouri, USA. <http://annualmeeting.aocs.org/>

June 16-19, 2019 15th International Rapeseed Congress, Berlin, ""Flowering for the Future""

<https://www.irc2019-berlin.com/>





9-12 February 2020. World congress on oils and fats 2020. Sidney, Australia.



We invite you to share information with the rapeseed/canola community: let us know the scientific projects, events organized in your country, crop performances or any information of interest in rapeseed/canola R&D.

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