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Editorial

Today, oilseed rape/canola is one of the major sources worldwide of edible oil and protein feed for animals. It is currently the no. 2 of major oilseed crops behind soybean. Key regions of production include Canada, China, Europe and Australia. The total acreage amounts to nearly 35 million hectares where more than 70 million tons of seed are produced every year. It has not always been like that; rapeseed was a minor crop only half-a-century ago.

There is no doubt that the enormous extension of rapeseed cultivation during the last 50 years would not have happened without the intense research on rapeseed quality leading to canola (00) cultivars. This was accompanied by the foundation of the Groupe Consultatif International de Recherche sur le Colza (GCIRC) in Paris. This International Consultative Group of Research on Rapeseed, an association of people interested in technical advance made in the production and processing of oilseed rape (OSR) was initially founded by a small group of experts aiming at the promotion of OSR/canola cultivation and use.

In order to achieve this goal, major improvements of seed quality had to be accomplished: i) the reduction of undesired erucic acid in the seed oil and ii) the reduction of glucosinolates in the rapeseed meal. These two quality steps were initiated in the 1970ies and first selected by Canadian and Polish scientists in germplasm from Germany and Poland. This material immediately became available for worldwide breeding and use without any restrictions.

The significant extension of OSR/canola cultivation has recently been accompanied by the appearance of damaging pathogens and pests endangering rapeseed cultivation in all major cultivation areas. At the same time environmental stresses tend to progressively compromise rapeseed production. Consequently, the improvement of resistance against biotic and abiotic stresses is one of the major

provocations for OSR breeding and cultivation. Other challenges include the further enhancement of oil quality as a health-promoting edible oil, and the amendment of protein content and composition for better feed and food. New genome-based breeding techniques will enable a more efficient development of elite material and improved (hybrid) varieties.

The coming 15th International Rapeseed Congress 2019 in Berlin will provide an excellent opportunity to communicate and discuss recent achievements in these and other fields and identify suitable future directions and improvements of OSR/canola as a whole. GCIRC, the International Consultative Group of Research on Rapeseed, is directing and coordinating rapeseed congresses held every four years as well as interim technical meetings. In order to further promote OSR/canola for future demands in agriculture and industry, GCIRC will take necessary steps to extend and intensify research on the sustainable and economic cultivation and the profitable use of OSR/canola. For this purpose, the presence of GCIRC in the scientific as well as commercial community needs to be strengthened. Experts from all relevant fields will be invited to become members of GCIRC. One of the tools for distributing recent information to the community will be a newsletter which is going to be regularly distributed. We are happy to present you this Newsletter now starting with No. 1.

Wolfgang Friedt, GCIRC President

Activity/ News of the association:

(news on conferences, technical meetings, issues on website, activities of the committees or working groups…)

Flash back on 2017, GCIRC Technical meeting In Alnarp, Sweden.

Field visit in chilly conditions…

GCIRC New president Prof Worlgang Friedt, GCIRC Secretary E; Pilorgé, Former President Dr Wilf Keller

The 2017 GCIRC technical meetings were organized very efficiently by our colleagues from SFO, one of the regular sponsors of the GCIRC, at Alnarp, near Malmö in Sweden. They gathered 117 people from 16 countries around 35 oral presentations and 7 posters, around a very rich program. In particular, in economics, a benchmarking of GMO / non-GMO

production costs was presented in Europe, Canada, Australia (Y Zimmer), a presentation on the determinants of oil prices and the specificities for each oil, with highlighting the effect of biofuels on prices, the evolution of the valuation of oil and protein fractions (N. Devore), changes in regulations (D. Bockey) and prospects for proteins (C Rempel). In terms of breeding, there were some very interesting papers on the nitrogen efficiency and the program of a German consortium on vegetable proteins, combining a biological approach and a technological approach. In agronomy, very complete presentation by A. von Tiedemann on the verticilium wilt, and also information on the development of rapeseed in Russia by Sergey Tuchin (opportunities for meetings with our Russian colleagues are not so many ...), on phoma in Sweden, on clubroot in Canada (rising problem). The issue of insect attacks and their growing resistance to insecticides and the search for integrated pest management options was addressed by several presentations in the agronomy session, in addition to a very interesting presentation of an approach to optimization of insecticide treatment strategies (Seidenglanz, Czech Rep), France, Great Britain, Sweden. The session on the downstream dealt a lot with protein valorization and methods for assessing their digestibility and also on the substitution of hexane by alternative solvents (M. Citeau).

Abstracts and most presentations are available in the members' area of your website www.gcirc.org (see Publications/GCIRC bulletins).

In addition, the meeting of the Board of Directors was an opportunity to relaunch the Board's reflection on the future orientations of the GCIRC, its ambition, its governance and its financing and to inform the members gathered in GA on these lines of work.

Last but not least, as expected according to the GCIRC constitution, Dr Wilfred Keller, who led the organization of the 14th IRC in Saskatoon, 2015, transmitted the office of GCIRC President to Dr Wolgang Friedt, who will lead the 15th IRC in 2019.

15th International Rapeseed Congress, Berlin, June 16-19, 2019 “"Flowering for the Future“. Registration is open **https://www.irc2019-berlin.com/**

The 15th International Rapeseed Congress, the flagship of GCIRC activities, will take place in Europe in 2019. UFOP, one of the regular GCIRC sponsors, will welcome you in the Capital of Germany for the most important scientific conference dedicated to the advancement of the global rapeseed market.

The first steering committee took place in Berlin last February 9 in order to settle the bases of the organization: financial aspects, programme structure, field tours… The steering committee visited the BCC, Berlin Congress center, site of the future congress, near Alexanderplatz, in Berlin City Center.

The 15th IRC will take place from 16th to 19th June 2019 in the bcc Berlin Congress Centre, located at Alexanderplatz in the centre of Berlin. The Union for Promotion of Oil and Protein Plants [Union zur Förderung von Öl- und Proteinpflanzen (UFOP)] has taken responsibility for planning, organization and realization of the IRC 2019.

The IRC is the most important scientific and practice-oriented rapeseed congress, taking place every four years. Coordinated by the International Consultative Group for Research on Rapeseed (GCIRC), it is held alternatively in different regions of the world. Over nearly five decades the IRC has provided a forum for experts in science, breeding, agronomical practice, crop protection, animal and human nutrition as well as economics and politics.

Accordingly, the Berlin congress will also deal with the whole spectrum of rapeseed cultivation and use. Alongside plenary keynote lectures, parallel sessions and workshops will deal with special topics, including specific aspects of production technology (arable farming and plant cultivation, crop protection, agricultural engineering) and breeding. Topics related to the use of products include animal and human nutrition, biofuels and renewable raw materials, economics, the development of new markets and competition with other plants and products, as well as innovative applications for rapeseed products based on oil or meal (protein).

In addition to the congress programme, participants will also be invited to participate in sightseeing tours and post-congress excursions to research institutes and breeding stations throughout Germany. This will provide insights into German institutions and companies involved in rapeseed research and application.

Scientists can now apply to present lectures and poster contributions at the International Rapeseed Conference (IRC) from 16th to 19th June 2019 in Berlin.

The Call for Papers, with its submission deadline of 31st January 2019, marks the next milestone en route to the world's largest rapeseed research conference with a simultaneously scientific and practice-oriented approach. The local conference organizer, the Union for the Promotion of Oil and Protein Plants e. V. (UFOP), and the conference sponsor, the International Advisory Group on Rapeseed Research (GCIRC), are expecting around 900 participants at bcc Berlin Congress Center

https://www.irc2019-berlin.com/call-papers

Results of the survey on GCIRC

In November 2017, the GCIRC members and persons having attended the 14th IRC in Saskatoon received a questionnaire on-line about the GCIRC and were asked to give their opinion and ideas about the needs in oilseed rape R&D and on the GCIRC itself. 33 GCIRC members and 105 non-members filled the questionnaire online, giving elements to GCIRC to develop strategies and act to better achieve its mission and meet the needs of the rapeseed/canola R&D community. All participants are warmly thanked. The results are available on the GCIRC website : http://gcirc.org/news/single-view/article/survey-on-gcirc-and-its-website-march-2018.html

Annual meeting of the GCIRC Executive board

The GCIRC executive board met in Berlin on April 12, together with the chairs of the GCIRC committees for a brainstorming session, and had deep discussion about the future evolutions of GCIRC. Part of the attendees participated from China, UK and Canada by visio-conference, in a very efficient way thanks to UFOP, who hosted the meeting.

Important topics have been discussed, such as the name of the association, a reform of the membership and recruitment with several levels of involvement, the support of institutional members, the evolution of the committees and the importance to organize working groups on transversal or multidisciplinary topics, the role and organization of the GCIRC Technical meetings, and the future finances of the association, and the communication. Many elements have been expressed, which make a good basis for elaborating a consistent project to be proposed to the General Assembly.

The exchanges lead to envisage to create new committees about “crop protection” and “mustards and other oilseeds brassicae crops” to complete the entries of “breeding”, “agronomy”, “analyses, processing and uses” and “economy and markets”.

On more challenging topics for oilseed rape R&D, several multidisciplinary topics could be considered, such as the (new) phenotyping technologies , the increase in protein content, the insects controle or the canola with specific fatty acids, these later topics being partly related to human nutrition.

At last, the GCIRC will develop its communication with its members and more generally with the rapeseed / canola community through this newsletter and a renewed website.

Scientific news

Publications:

BREEDING

J Batley; 2018. Fertility and meiotic stability in novel Brassica crop types. Conference: Plant And Animal Genome Conference (XXVI)

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G. K. Mitrousia, Y. J. Huang, A. Qi, S. N. M. Sidique, B. D. L. Fitt2018. Effectiveness of Rlm7 resistance against Leptosphaeria maculans (phoma stem canker) in UK winter oilseed rape cultivars. Plant Pathology. https://doi.org/10.1111/ppa.12845

Laurencja Szała, Teresa Cegielska-Taras, Elżbieta Adamska, Zygmunt Kaczmarek. 2018. Assessment of genetic effects on important breeding traits in reciprocal DH populations of winter oilseed rape (Brassica napus L.) . DOI10.1016/S2095-3119(17)61776-3

Chen Sheng, Guo,Yiming, Sirault Xavier, Stefanova Katia, Turner Neil, Nelson Matthew, Salisbury Phillip, Furbank Robert, Siddique Kadambot, Cowling Wallace, Nc Turner, Mn Nelson, Kh Siddique,

2018 (book). Non-destructive_phenomic_tools_for_the_prediction_of_heat_and_drought_tolerance_at_anthesis_in_Brassica_species. https://www.researchgate.net/publication/325870701

Stotz HU, Harvey PJ, Haddadi P, Mashanova A, Kukol A, Larkan NJ, et al. (2018) Genomic Evidence for genes encoding leucine-rich repeat receptors linked to resistance against the eukaryotic extra and intracellular Brassica Napus pathogens Leptosphaeria maculans and Plasmodiophora brassicae. PLoSONE 13(6):e0198201. https://doi.org/10.1371/journal.pone.0198201

Su Yang, Sheng Chen, Kangni Zhang, Lan Li, Yuling Yin, Rafaqat A. Gill, Guijun Yan, Jinling Meng, Wallace A. Cowling and Weijun Zhou, 2018. A High-Density Genetic Map of an Allohexaploid Brassica Doubled Haploid Population Reveals Quantitative Trait Loci for Pollen Viability and Fertility. Front. Plant Sci., 28 August 2018 | https://doi.org/10.3389/fpls.2018.01161

CROP PROTECTION

W. G. Dilantha Fernando†, Xuehua Zhang, Carrie Selin, Zhongwei Zou, and Sakaria H. Liban, 2018. A Six-Year Investigation of the Dynamics of Avirulence Allele Profiles, Blackleg Incidence, and Mating Type Alleles of Leptosphaeria maculans Populations Associated with Canola Crops in Manitoba, Canada. Plant Disease. https://doi.org/10.1094/PDIS-05-17-0630-RE

Jana Poslušná, Eva Plachká and Jana Mazáková, 2018 . Influence of Selected Fungicides Registered in the Czech Republic for Winter Oilseed Rape on In Vitro Sclerotinia sclerotiorum Mycelial Growth. Plant Protect. Sci. https://doi.org/10.17221/137/2016-PPS

Carlos Trapero, Esteban Alcántara, Jaime Jiménez, María C. Amaro-Ventura, Joaquín Romero, Birger Koopmann, Petr Karlovsky, Andreas von Tiedemann3, Mario Pérez-Rodríguez and Francisco J. López-Escudero. Starch Hydrolysis and Vessel Occlusion Related to Wilt Symptoms in Olive Stems of Susceptible Cultivars Infected by Verticillium dahlia. Jan 2018. Fronters in Plant Science. https://doi.org/10.3389/fpls.2018.00072

Angela P. Van de Wouw, Barbara J. Howlett, and Alexander Idnurm. 2018. Changes in allele frequencies of avirulence genes in the blackleg fungus, Leptosphaeria maculans, over two decades in Australia. Crop & Pasture Science, 2018, 69, 20–29 http://dx.doi.org/10.1071/CP16411

AGRONOMY

John A. Kirkegaarda, Julianne M. Lilley, Rohan D. Brill, Andrew H. Ware, Christine K. Walela 2018. The critical period for yield and quality determination in canola (Brassica napus L.). Field Crop research https://doi.org/10.1016/j.fcr.2018.03.018

Tao Liu, Tao Ren, Philip J. White, Rihuan Cong and Jianwei Lu,2018 Storage nitrogen co-ordinates leaf expansion and photosynthetic capacity in winter oilseed rape. Journal of Experimental Botany, https://doi.org/10.1093/jxb/ery134

Nuria Pardo, M. Luisa Sánchez, Zhongbo Su, Isidro A. Pérez, M. Angeles García, 2018. SCOPE model applied for rapeseed in Spain. Science of the Total Environment. https://doi.org/10.1016/j.scitotenv.2018.01.247

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PROCESSING & USES

M. Bournazel, M. Lessire,, S. Klein,, N. Même, C. Peyronnet,, A. Quinsac,, M. J. Duclos, and A. Narcy, 2018. Phytase supplementation in diets rich in fiber from rapeseed enhances phosphorus and calcium digestibility but not retention in broiler chickens. February 2018 Poultry Science http://dx.doi.org/10.3382/ps/pex446

Carré P, Citeau M, Dauguet S. 2018. Hot ethanol extraction: economic feasibility of a new and green process. OCL Journal. https://doi.org/10.1051/ocl/2017061

Citeau M, Albe Slabi S, Joffre F, Carré P, 2018. Improved rapeseed oil extraction yield and quality via cold separation of ethanol miscella. OCL Journal. https://doi.org/10.1051/ocl/2018012

Nicole Combe, Olivier Henry, Carlos Lopez, Carole Vaysse, Isabelle Fonseca, Danièle Ribaud, Fathi Driss, Noëmie Simon, Céline Le Guillou, François Mendy†. 2018 . Hospital Diet Enriched With Rapeseed or Sunflower Oils Is Associated With a Decrease in Plasma 16:1n-7 and Some Metabolic Disorders in the Elderly. Lipids (2018) 53: 145–155 / https://doi.org/10.1002/lipd.12012 (Feb 2018)

Oscar Laguna, Abdellatif Barakat, Hadil Alhamada, Erwann Durand, Bruno Baréa, Frédéric Fine, Pierre Villeneuve, Morgane Citeau, Sylvie Dauguet, Jérôme Lecomte, 2018. Production of proteins and phenolic compounds enriched fractions from rapeseed and sunflower meals by dry fractionation processes. Industrial Crops & Products. https://doi.org/10.1016/j.indcrop.2018.03.045 (March 2018)

Rahul Sen Sanjula, Sharma Sanjula ,Gurpreet Kaur. S. Banga, 2018. Near-infrared reflectance spectroscopy (NIRS) calibrations for assessment of oil, phenols, glucosinolates and fatty acid content in the intact seeds of oilseed Brassica species: NIRS based estimation of quality parameters in Brassica. January 2018 Journal of the Science of Food and Agriculture. DOI10.1002/jsfa.8919

Value chains and regional news

Depressed yields in the European Union. 2018 oilseed rape yields in Europe are relatively depressed this year due to unfavorable climate. In its latest issue of August he bulletin MARS of the Joint Research center of the European Commission estimates a decrease of 13% below the 5-years average of the OSR yield at EU scale, at 2.87t/ha. All arable crops except durum wheat and grain maize - and probably sunflower (not harvested yet) – show depressed yields. See: https://ec.europa.eu/jrc/sites/jrcsh/files/jrc-mars-bulletin-vol26-no08.pdf . In France, the national average ranges by 3.1 t/ha, against 3.83t/ha in 2017.

Nevertheless, in UK, Farmers' Weekly reports in its issue of July 31 that a rapeseed grower of Lincolnshire broke his own yield record with 7.01 tons /ha with a hybrid winter cultivar, his farm average being around 5t/ha. Exploiting the genetic potential in a sustainable way is still a challenge.

Public policies: Canada goes on investing in Canola: Government of Canada invests over can$12 million to advance innovation and sustainability in Canada's canola sector (see: https://www.canolacouncil.org/news/federal-investment-in-research-will-help-drive-canola%E2%80%99s-economic-impact-higher/)

Europe: Mutagenesis can be exempted from the obligations of the GMO Directive, but not the new techniques. The Court of Justice of the EU considers in a judgment of July 25, following an appeal made by the French syndicate Confederation Paysanne, that the plants obtained by the traditional methods of mutagenesis are GMOs but can be exempted from the obligations related to this GMO directive (as is the case today) considering that their security has been proven for a long time. On the other hand, for the Court, to exclude from the scope of the GMO Directive new mutagenesis techniques "would undermine the aim of this Directive of avoiding negative effects on human health and the environment and would disregard the principle of precaution ". The European Commission has been calling for a long time to publish a legal interpretation of the legislation to determine whether some of the new selection techniques may benefit from an exemption from the EU's GMO obligations. Discussions with the Member States will be able to resume, knowing that, unless the GMO directive is revised, the EU justice will have the last word. (Source Agra presse)

International and national events

15-16 October 2018, 1st International conference on Oil Bodies/ Oleosomes Wageningen, The Netherland. St http://www.oilbodyconference2018.org/en/

22-23 October: Canola Discovery Forum. Banff, Alberta, Canada.
https://www.regonline.com/builder/site/default.aspx?EventID=2525702

24-26 October 2018: 11th Protein Summit , Lille, France. http://www.cvent.com/events/bridge2food-11th-protein-summit-2018/custom-22-b18ad8da9cd3490e9c3badb01746cde2.aspx

29-30 October 2018: Omega-3 summit 2018. Brussels, Belgium . http://www.omega3summit.org/

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

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

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

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

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