GCIRC News

Global Council for Innovation in Rapeseed and Canola

"Building a World community for Innovation on Rapeseed and Canola"

N° 16, May 2024

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Editorial

Greetings and welcome to GCIRC Newsletter #16, May 2024.

Welcome to newsletter #16 albeit some time since #15. I trust that this finds you in good health as we move into the second half of 2024 and approach the northern hemisphere canola harvest and close to yield forecasts and look forward to seeing the country crop reports in this newsletter.

Unfortunately, the war in Ukraine continues, approaching two and a half years, our thoughts and support remain very strong for everyone in Ukraine and none more than our colleagues and the agriculture community.

With the final report of IRC-16 submitted to the board in March this year, I hope you enjoy and reminisce as you read the summary listed later within. The success of the Congress was highlighted by having over 500 delegates from 30 countries together since the global pandemic, it certainly doesn't seem like it was 8 months ago.

Our attention now turns to the Technical Meeting in Cambridge 8-10 April 2025. With the support of NIAB and leadership of Colin Peters planning well under of the program that will cover global issues. So put the date in your diary, more information will be available directly.

At the Sydney board meeting September last year, a proposal to establish an Executive Committee from within the current board was put forward to more thoroughly review items of business that require more background detail and then present a recommendation to the board. The committee to exist of the GCIRC President, Secretary and three board members.
A resolution was passed at the February board meeting to establish an Executive Committee with Curtis Rempel (Canada), Katarzyna Mikolajczyk (Poland) and Albin Gunnarson (Sweden) accepting nomination.

Remember IRC-17 in Paris 2027.

Robert Wilson, GCIRC President

Activity/ News of the association

IRC-16 Sydney 2023 – September 24-27, Australia

irc 2023 SYDNEY
16th INTERNATIONAL RAPESEED CONGRESS
24 - 27 September 2023
GLOBAL CROP - GOLDEN OPPORTUNITIES

Before the Congress, the IRC-2023 **Field Day** was held in Wagga Wagga, New South Wales. Wagga Wagga is a major regional city in the Riverina region, located midway between the two largest cities in Australia - Sydney and Melbourne.

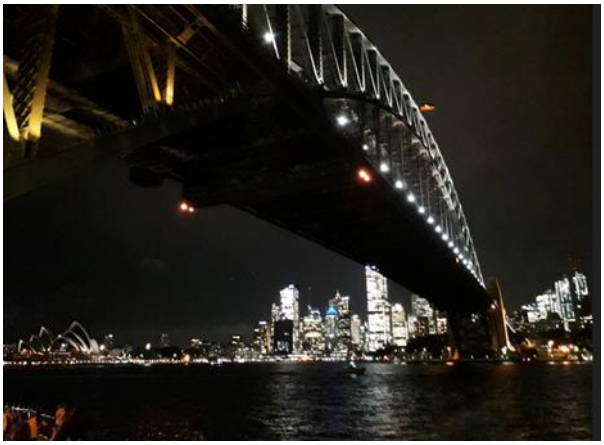
Wagga is one of Australia's leading centres of canola breeding and research and was the perfect location to showcase developments and opportunities in the industry. Over 300 delegates participated at Field Day.

During the Field Day, delegates experienced:

- Variety trial demonstrations from nine canola companies
- GRDC Canola National Variety Trial
- NSW DPI research experiments on canola, pathology & farming systems

"Drone photo of site taken on August 23rd. Large experiment in the middle is the main phenology experiment with four sowing dates. The different rates of development can be clearly seen ranging from nearing the end of the flowering to still vegetative stages."

The IRC-2023 Welcome Reception was held on Sunday September 24th on the luxurious super yacht, The Jackson. Delegates cruised Sydney Harbour, enjoying breath-taking views of iconic landmarks such as the Sydney Opera House and the Harbour Bridge.
As the first event in the four-day Congress calendar, the Welcome Reception Cruise allowed attendees to catch up with colleagues and establish valuable new connections.



30 countries were represented at the IRC 2023, with over 515 delegates, including 158 speakers and 133 poster presenters. Given the distance to Australia and the complexity due to Covid-19 still in the back in everyone's mind, to have 30 countries attending the meeting was a real success. Delegates were from Argentina, Australia, Belgium, Canada, Chile, China, Czech Republic, Denmark, Estonia, France, Germany, India, Japan, Kazakhstan, Mexico, Netherlands, New Zealand, Nigeria, Poland, Russian Federation, Serbia, South Africa, South Korea, Sweden, Switzerland, Tunisia, Turkey, Ukraine, United Kingdom, and United States. The top ten countries were Australia 34%, China 19%, Canada 11%, Germany 10%, France 5%, India 4%, United Kingdom 3%, United States 3%, South Africa 2%, and Sweden 2%.
The final program included 8 plenary talks, 1 Theme Leader Summations, 3 Panel sessions, 24 parallel thematic sessions with 131 slots for oral presentations (13 minutes) with 18 Keynote Talks (28 minutes) and 133 posters. Furthermore, a Clubroot Workshop took place on Sunday, Sept 24, 2023.
The organisation Committee received 312 proposals for communications, of which 282 have been selected, either as oral presentations or posters, as follows:

THEME	ORAL	POSTER
Agronomy, Physiology and Simulation	27	25
Pests & Diseases	33	27
Products / End Uses / Markets	25	12
Genetics, Genomics and Breeding	64	69
TOTAL	**149**	**133**

Welcome to the Country.

"Genetics, Genomics and Breeding" was still the dominant areas of Interest for the Delegates (47%), followed by "Agronomy, Physiology and Simulation" (22%), "Pests and Diseases" (18%), "Products and Quality" (7%), "Economy and Markets" (5%) and "End Users" 2%.
Researchers (56%) and scientists (18%) made together more than three quarters of the attendance, followed by R & D (15%), growers (3%) and Government (2%)

The IRC-2023 Gala Dinner was THE social event of the Congress. Set in the ballroom of the iconic Luna Park, delegates enjoyed a three-course meal, drinks, and an evening of entertainment, which included Stilt Walkers on arrival, a Tap n Sax performance, a Photo Booth, free Ferris Wheel rides and a band that kept the guests up dancing until the end.

GCIRC Eminent Scientist Awards

The Eminent Scientist Awards were presented at the very beginning of the congress to Dr. Martin Frauen (Germany) and Dr. Rodney Mailer (Australia).

Rob Wilson, president of GCIRC, reminded the audience that the GCIRC Eminent Scientist Awards is bestowed to a scientist or a group of scientists, and still today, all of them have been individual awards, for one's scientist contributions and achievements to the rapeseed-canola industry. Judging panels consisting of the GCIRC Technical Committees leads, immediate past president, current president, and current secretary, ensured of these contributions by reviewing the career of the individuals. The first award was attributed to Baldur Stefanson, from Canada, in 1987 at the 7th IRC in Poznan, Poland.

Dr. Martin Frauen worked as a doctoral student and then research assistant at the Institute of Plant Production and Plant Breeding at Göttingen University. The topic of his thesis was "Phenotypic and genetic variances and co-variances in a population of *Vicia faba*, final breeding lines and their breeding significance".

He definitively took the path to seed breeding in 1982 as seed breeding manager at the NPZ-Lembke company in Germany. The main focus of his work was rapeseed breeding. In 1986, breeding for double-0 quality in winter oilseed rape had a real breakthrough with the first European 00-variety, Ceres, which played a major role in the conversion of the rapeseed cultivation to the new quality requirements in Germany and other European countries. Another important milestone came in 1995 with the first restored MSL hybrid cultivars, Joker and Pronto, which were made widely available to farmers as hybrid varieties, opening the road to yield levels not reachable before. MSL stands for "male sterility Lembke", reminding of the origin of this innovation by NPZ-Lembke and Dr Martin Frauen. In 2000 and 2001, the hybrid Mendel variety was approved in UK and Germany as the first worldwide variety with resistance to clubroot. All along his career as breeder, Dr Martin Frauen delivered numbers of new

canola cultivars providing progress in yield level and stability, quality and resistance to diseases such as clubroot and phoma.

In his role in the different organisations and especially as head of oil and protein plants section of the GFP, he had a key role in the coordination of research activities between the scientific and commercial communities, and the orientation of public funding. Dr Frauen initiated and, in some cases, coordinated large national and international research projects like the NAPUS200 project, YelLowSin (Germany-Canada cooperation) or GABI-Genoplante projects (French-German projects). He also served on numerous scientific advisory boards, like the Scientific Advisory Board of the German Plant Research Program GABI of the Ministry of Education and Research, the Scientific Advisory Board of the German Society for Fat Science and numerous other scientific organizations. Since 2003, he was member of the board of the GCIRC. At last, he contributed to the organization of the 15th IRC in Berlin in 2019, as a key member of the steering committee.

Dr Rodney Mailer completed a Master of Science degree at the Australian National University (ANU) in 1989, studying the environmental effects on the quality of Australian canola. He went on to complete his PhD at the University of Manitoba in 1993, where he investigated canola cultivar variation and discrimination using HPLC and DNA-PCR technology.

Rod joined the NSW Department of Primary Industries' (NSW DPI) in 1979 and managed research projects on various oil crops, particularly canola and olive oil during that time. Rod rose through the ranks of the edible oil research program, ultimately achieving the role of Principal Research Scientist with the department. Rod managed programs which studied the quality of Australian canola from the introduction of the crop into Australia in the 1980's, which ultimately contributed to the successful establishment of the crop as a viable option for Australian producers. He was a key member of the National Brassica Project, which aimed to improve quality characteristics in canola.

Rod has authored many scientific and industry publications both domestically and internationally and has attended many conferences and workshops over his career, sharing his findings with industry. Rod is associated with the release of 20 canola cultivars from the NSW DPI canola breeding program, which laid the foundation for the continued success of the industry. He chaired the organisation committee for the International Rapeseed Congress in Canberra in 1999. He was the Chairman of the organising committee for the World Congress on Fats and Oils held in Sydney in 2009 and again in 2019.

Rod has been a member of the GCIRC for more than 30 years, also as President of the organisation from 1997 to 2001 and an Executive Board Member from 1995 to 2019. Rod has been a member of the American Oil Chemists' Society (AOCS) for more than 40 years. He was made a fellow of the AOCS in 2014 and an Emeritus Member in 2019. He was the inaugural President of the Australian section of the AOCS from 1996 to 1998 and remains a member of the section. Rod was the Australian delegate and Technical Expert for Codex Alimentarius from 1999-2010. He has also served as the Technical Expert and Delegation Leader for International Standards Organisation committees on Oleaginous seeds and fruits and oilseed meals (ISO/TC034/SC 02) and Animal and vegetable fats (TC34/SC11).

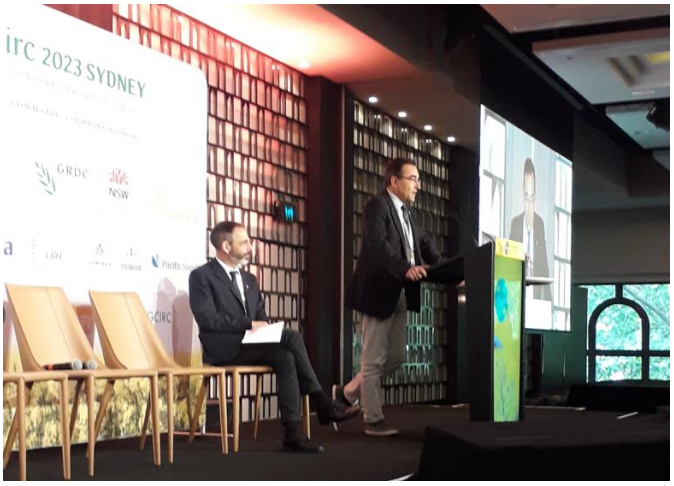
GCIRC Student Awards

Two students were awarded a GCIRC Prize: one for Best Poster by a Student and one for the Best Oral Presentation by a Student. After all the Students' presentations, a team of judges reviewed presentation score results to determine the best overall student oral and poster presentation. Awards were presented at the Closing of the Congress.

GCIRC Students Awards presented by Rod Mailer.

Next IRC in Paris, France

The 16th IRC ended with the announcement of the 17th IRC, in 2027 in Paris, by the representatives of the French oilseeds professional organisation, Gilles Robillard, President of The Technical Institute Terres Inovia, and Laurent Rosso, CEO.



Gilles Robillard (left) and Laurent Rosso (right).

They delivered their invitation to the international rapeseed-canola community reminding attendees the challenges of the time: *"Building the necessary transitions will require scientific and technical collaboration between countries to mobilise all the knowledge already acquired and to pool efforts to acquire new knowledge, (…) the complexity of the challenges we face calls for a systemic approach integrating scientific disciplines - from genetics to agrophysiology, from pest biology to agronomy, from nutrition to food science - and agricultural engineering - from the development of varieties and inputs to the design of innovative cropping and production systems - and agri-food engineering . It is in this spirit of scientific excellence and interdisciplinary exchanges between scientists and professionals, from*

both the public and private sectors, which are at the heart of the GCIRC's history, that we propose to organise the 17th rapeseed congress, in response to the challenge of climate and agro-ecological change."

The Congress after the Congress: presentations available online

The presentations made as plenary lectures, oral talks in thematic sessions and posters have remained at the disposal of the delegates during one month on the IRC website.
Almost all these documents are now available to GCIRC members on the GCIRC website and the GCIRC YouTube channel, at (use your login and password to reach the Publications section):
https://www.gcirc.org/publications/congress-proceedings/Display/16th%20IRC%20Sydney,%20Australia,%202023

As usual, these documents will be for GCIRC members only until the next IRC *(interested persons may join GCIRC by contacting contact(at)gcirc.org)*
The abstracts and presentation of the IRC15 in Berlin (2019) are now available to all.

GCIRC General Assembly

The GCIRC General Assembly was held in Sydney, on September 25th, 2023. 43 members were present, 19 gave proxies and 51 were excused.
The agenda included the following points, in order to give full information to the GCIRC members on the current life and progress of the association, give them the opportunity to ask questions, provide advices and fortunately approve the Board for its management: Activity report from 2021, Memberships (new members and resignations), Financial report for 2021-2022, Governance of GCIRC (Board and Committees), Rapeseed Awards, Budget and activities for 2023-2025, Next GCIRC events: 2025 Technical Meeting and 2027 IRC17.
The GA Report and annex information is available to GCIRC members on the GCIRC website (section Publications/general Assemblies)

GCIRC Technical Meeting 2025

Save the dates: the next GCIRC Technical Meeting is scheduled to take place in Cambridge, United Kingdom, April 8-10, 2025.
The organising committee has identified a number of key topics that will form the backbone of these meetings, in addition to an overview of the main advances in rapeseed research: carbon issues, progress in nitrogen fertilization, pests' control.

Welcome to New GCIRC members

Since July 2023, we have welcomed eight new members:

HUANGYong-Ju	*University of Hertfordshire, UNITED KINGDOM*
SIRHINDI Geetika	*Punjabi University, INDIA*
LUCAS Alexandra	*PIONEER, AUSTRALIA*
HEPWORTH Jo	*Durham University, UNITED KINGDOM*
LEGROS Sandrine	*LIDEA SEEDS, FRANCE*
SWANEPOEL Pieter	*Stellenbosch University, SOUTH AFRICA*
KUDNIG Justin	*ADVANTA SEEDS, AUSTRALIA*
LE GUILLOUX Guénaël	*AGROPOL, FRANCE*

Also, several persons who have been GCIRC members for many years left the association after retiring:

Greg BUZZA, Nuseed NUFARM AUSTRALIA LIMITED, Australia

Bruce FITT, University of Hertfordshire, United Kingdom

Folkhard ISERMEYER, Thünen Institut, Germany

Christian JUNG, Plant Breeding Institute, Germany

Simon KIGHTLEY, NIAB, United Kingdom

We thank them for their long-standing support and contribution to our rapeseed and canola community and wish them all the best for the future.

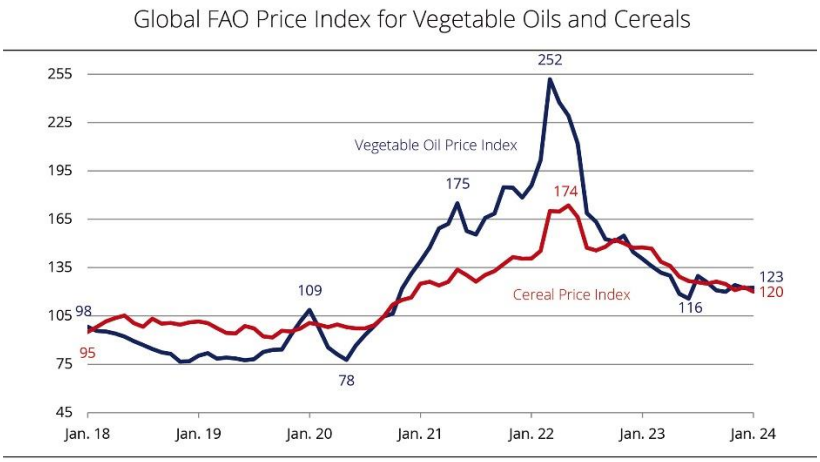
You may visit their personal pages on the GCIRC website directory, to better know their fields of interest. We take this opportunity to remind all members that they can modify their personal page, especially indicating their fields of interest in order to facilitate interactions.

Value chains and regional news

Evolution of the FAO vegetable oils price index.

The FAO vegetable oil price index averaged 122.5 points in January, which was marginally up from the previous month, but still 12.8 per cent below the January 2023 level. It rose by 0.3% to a 13-month high of 130.9 points in April 2024, as higher quotations for sunflower and rapeseed oil offset slightly lower prices for palm and soy oils. Oils Price Index in World averaged 90.76 Index Points from 1990

until 2024, reaching an all-time high of 251.80 Index Points in March of 2022 and a record low of 35.80 Index Points in February of 2001 (source FAO/UFOP/ Tradingeconomics.com)

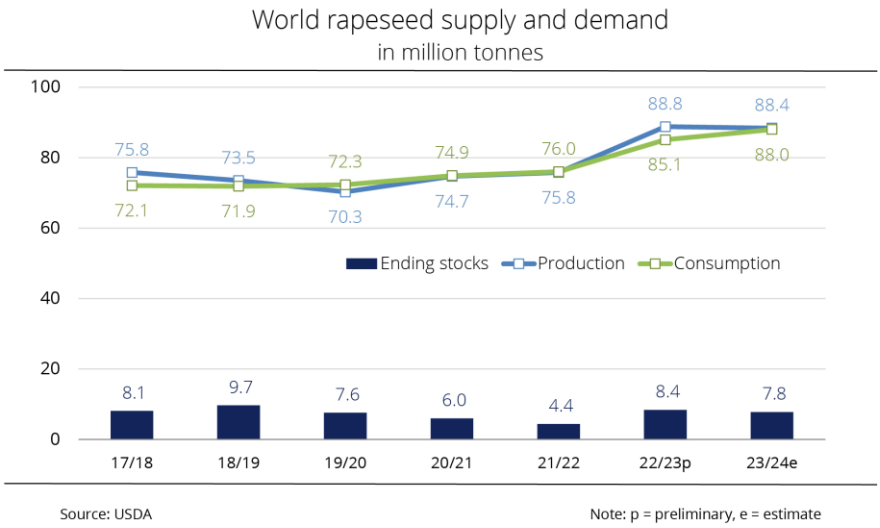


Global rapeseed production

Based on a presumed slight increase in Australia's rapeseed harvest, global production is likely to exceed previous expectations. According to recent information published by the US Department of Agriculture (USDA), global rapeseed production in the current crop year is set to amount to 88.4 million tonnes. Nevertheless, the current season will probably fall short of the previous year's output of 88.8 million tonnes. The main reason for the higher forecast is a larger harvest in Australia. Although Australian farmers noticeably reduced the rapeseed area compared to the previous year in view of continued low-price levels, the harvest is estimated to exceed previous expectations by 200,000 tonnes, reaching 5.7 million tonnes. This would nevertheless be far below the previous year's output of 8.3 million tonnes.

According to latest USDA information, world consumption will probably amount to 88.0 million tonnes, with ending stocks increasing 2.9 million tonnes from the previous year to 7.8 million tonnes. Demand is anticipated to increase especially in Canada, at 11.8 million tonnes, due to further capacity expansions in oil crushing mills from currently approximately 13 million tonnes to more than 15 million tonnes by 2025.

Read more on UFOP Chart of the week 16 2024 (https://www.ufop.de/english/news/chart-week/#kw16_2024)



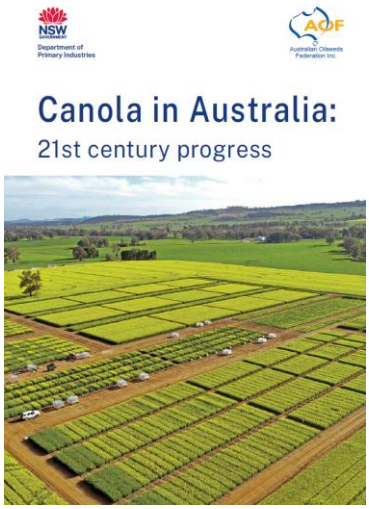
Australia: Canola in Australia: 21st century progress

At the occasion of the IRC16, a book was edited by the AOF on the canola in Australia. This book is an echo to a first edition published at the time of the IRC10 in 1999 in Canberra, 24 years ago.

The focus of this publication was to highlight some of the research and advances made regarding canola production systems in Australia since 1999, building on the experiences shared in Canola in Australia – the first thirty years. "Canola in Australia: The first thirty years, published in 1999 to coincide with the 10th International Rapeseed Congress (IRC) in Canberra, provided great insight into canola production from humble beginnings in 1970 when local breeding programs were established following the collapse of the industry in the late 1960s to the blackleg disease.

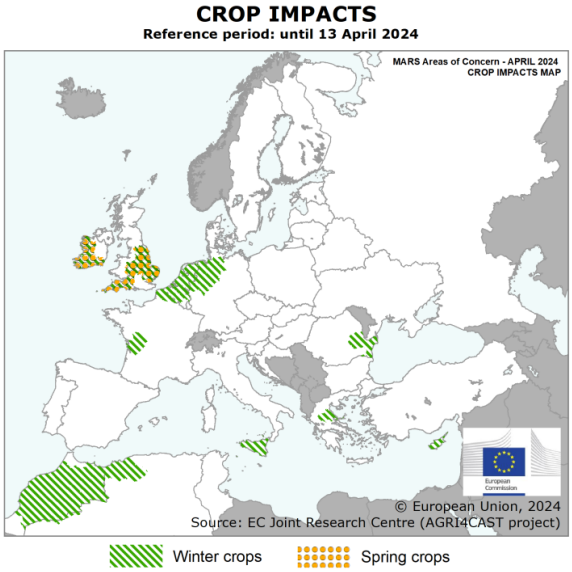
Canola in Australia: 21st century progress, perfectly coincides with the 16th IRC in Sydney 2023. More than 30 authors from public state and national research organisations, universities and private sector have contributed. Each chapter highlights the significant improvements made over the past 24 years, including breeding for new herbicide tolerances and genetically modified canola, as well as quantitative yield traits and modified oil profiles. Outside of private sector breeding, much of the research is funded as a co-investment with the Grains Research and Development Corporation (GRDC). The Australian canola industry has achieved remarkable growth since 1999. The crop has expanded from an area of 1.9 million hectares producing 2.5 million tonnes in 1999, to 3.25 million hectares sown and over 6.5 million tonnes produced in 2021–22, with world class science and industry participation underpinning this achievement. Canola is now the third largest winter crop in Australia behind wheat and barley and has been second in value over the past 2 years." (*from foreword by Rob Wilson*)

Reference: Federation, A. O. (2023). Canola in Australia: 21st century progress. NSW Department of Primary Industries.



Free access on: https://nswdpe.intersearch.com.au/nswdpejspui/handle/1/10705

Europe: Climate crop impacts



Exceptionally warm spring temperatures, combined with adequate water supply, benefitted winter crops, and created favourable conditions for the sowing and emergence of spring cereals and summer crops in most parts of Europe. However, overly wet conditions in north-western Europe negatively affected the yield potential and hampered sowing, most severely in Ireland and the United Kingdom. Conditions improved somewhat in northern and part of western France, as well as in Belgium, the Netherlands and north-western Germany, but *winter crops in inadequately drained fields are unlikely to fully recover* from the overly wet conditions during autumn and winter. Dry conditions negatively impacted the yield potential in some southern regions *(source: JRC news and updates 22 April 2024).*

Europe: Vote in the Parliament on New Genomic Techniques

Parliament adopted its position for negotiations with member states on the Commission proposal on New Genomic Techniques (NGTs), which alter the genetic material of an organism, with 307 votes to 263 and 41 abstentions.

The objective is to make the food system more sustainable and resilient by developing improved plant varieties that are climate resilient, pest resistant, and give higher yields or that require fewer fertilisers and pesticides.

Currently, all plants obtained by NGTs are subject to the same rules as genetically modified organism (GMOs). MEPs agree with the proposal to have two different categories and two sets of rules for NGT plants. NGT plants considered equivalent to conventional ones (NGT 1 plants) would be exempted from the requirements of the GMO legislation, whereas other NGT plants (NGT 2 plants) would still have to follow stricter requirements. MEPs want to keep mandatory labelling of products from both NGT 1 and NGT 2 plants.

Read more on EU Parliament website: https://www.europarl.europa.eu/news/en/press-room/20240202IPR17320/new-genomic-techniques-meps-back-rules-to-support-green-transition-of-farmers

Scientific news

Publications

To the authors: we identify publications through research with 2 key words only: "rapeseed" and "canola".
If a publication does not contain one of these two words, but for example only Brassica napus or terms implicitly linked to rapeseed/canola (names of diseases or insects or genes, etc.…), it will not be detected.

GENETICS & BREEDING

Norouzi, M.A., Ahangar, L., Payghamzadeh, K. et al. Investigation of genetic diversity of different spring rapeseed *(Brassica napus L.)* **genotypes and yield prediction using machine learning models.** Genet Resour Crop Evol (2024). https://doi.org/10.1007/s10722-024-01915-6

Heilmann, P. G., Frisch, M., Abbadi, A., & Herzog, E. (2023). Stacked ensembles on basis of parentage information can **predict hybrid performance** with an accuracy comparable to marker-based GBLUP. Frontiers in Plant Science, 14, 1178902. https://doi.org/10.3389/fpls.2023.1178902

Cheng, H., Hao, M., Sang, S., Wen, Y., Cai, Y., Wang, H., ... & Hu, Q. (2023). Establishment of new convenient two-line system for **hybrid production** by targeting mutation of OPR3 in allopolyploid *Brassica napus*. Horticulture Research, 10(12), uhad218. https://doi.org/10.1093/hr/uhad218

Dou, S., Zhang, T., Wang, L., Yang, C., Quan, C., Liang, X., ... & Dai, C. (2024). The self-compatibility is acquired after polyploidization: a case study of *Brassica napus* self-incompatible trilinear hybrid breeding system. New Phytologist, 241(4), 1690-1707. https://doi.org/10.1111/nph.19451

Xiao, L., Zhang, J., Yu, K., Yang, X., Wang, Q., Jin, H., ... & Tian, E. (2024). Molecular regulation of Bna1205ams1 required for male fertility and development of a **recessive genic male-sterility system** in *Brassica napus*. bioRxiv, 2024-02. https://doi.org/10.1101/2024.02.25.581914

Mann, A., Kumari, J., Kumar, R., Kumar, P., Pradhan, A. K., Pental, D., & Bisht, N. C. (2023). Targeted editing of multiple homologues of GTR1 and GTR2 genes provides **the ideal low-seed, high-leaf glucosinolate** oilseed mustard with uncompromised defence and yield. Plant Biotechnology Journal, 21(11), 2182-2195. https://doi.org/10.1111/pbi.14121

Bogahawatta, A. H. (2023). Knockout of transcription factor MYB28 by CRISPR/Cas9 for reducing **glucosinolate content** in rapeseed *(Brassica napus L.).* https://stud.epsilon.slu.se/19571/

Kim, D. G., Ryu, J., Yang, B., Lee, Y. J., Kim, J. H., Kim, J., ... & Ahn, J. W. (2023). Genetic Variation and Association Analysis of **Phenolic Compounds** in Rapeseed (*Brassica napus L.)* Mutant Lines Using Genotyping-by-Sequencing (GBS). Horticulturae, 9(11), 1204. https://doi.org/10.3390/horticulturae9111204

Cheng, H., Cai, S., Hao, M., Cai, Y., Wen, Y., Huang, W., ... & Hu, Q. (2023). Targeted mutagenesis of BnTTG1 homologues generated **yellow-seeded rapeseed** with increased oil content and seed germination under abiotic stress. Plant Physiology and Biochemistry, 108302. https://doi.org/10.1016/j.plaphy.2023.108302

Qu, C., Zhu, M., Hu, R. et al. Comparative genomic analyses reveal the genetic basis of the **yellow-seed trait** in *Brassica napus*. Nat Commun 14, 5194 (2023). https://doi.org/10.1038/s41467-023-40838-1

Dai, G., Liu, Y., Shen, W. et al. Molecular evolution analysis of MYB5 in Brassicaceae with specific focus on **seed coat color** of *Brassica napus*. BMC Plant Biol 24, 52 (2024). https://doi.org/10.1186/s12870-023-04718-6

Wang, Y., Lu, H., Liu, X., Liu, L., Zhang, W., Huang, Z., ... & Xu, A. (2024). Identification of **Yellow Seed Color Genes** Using Bulked Segregant RNA Sequencing in *Brassica juncea* L. International Journal of Molecular Sciences, 25(3), 1573. https://doi.org/10.3390/ijms25031573

Chen, X. Y., Wu, H. X., Zhang, X. H., Guo, R. H., Li, K., Fu, Y. L., ... & Yu, C. Y. (2024). Comparative Transcriptomics Uncovers Upstream Factors Regulating BnFAD3 Expression and Affecting **Linolenic Acid Biosynthesis in Yellow-Seeded Rapeseed** *(Brassica napus L.).* Plants, 13(6), 760. https://doi.org/10.3390/plants13060760

Havlickova, L., He, Z., Berger, M., Wang, L., Sandmann, G., Chew, Y. P., ... & Bancroft, I. (2024). Genomics of predictive radiation mutagenesis in oilseed rape: **modifying seed oil composition.** Plant biotechnology journal, 22(3), 738-750.https://doi.org/10.1111/pbi.14220

Marcheva, M., Petkova, M., & Atanassova, S. (2023). Mutagenesis as tool for enhancement **of fatty acid composition** of rapeseed (*Brassica napus L.).* Bulgarian Journal of Agricultural Science, 29(6). https://www.agrojournal.org/29/06-11.pdf

Connelly, M. (2023). Information Supporting a Regulatory Status Review of **Canola Genetically Engineered** to Produce EPA and other **Long Chain Omega-3** Fatty Acids. https://www.aphis.usda.gov/sites/default/files/23-228-01rsr.pdf

Liu, Y., Du, Z., Li, Y. et al. Improving **linolenic acid content** in rapeseed oil by overexpression of CsFAD2 and CsFAD3 genes. Mol Breeding 44, 9 (2024). https://doi.org/10.1007/s11032-024-01445-0

Xu, S., Chen, S., Cai, J., Yan, T., Tu, M., Wang, R., ... & Jiang, L. (2024). Genomic and transcriptome analyses reveal the molecular basis for **erucic acid biosynthesis** in seeds of rapeseed (*Brassica napus).* https://doi.org/10.21203/rs.3.rs-3901677/v1

Zhang, X., Li, H., Hu, J., Liu, Y., Huang, Q., Li, X., ... & Yang, G. (2023). A stable quantitative trait locus on chromosome A10 improves the **oil content** of a backbone parent in *Brassica napus L*. Industrial Crops and Products, 202, 117054.., https://doi.org/10.1016/j.indcrop.2023.117054

Yao, M., He, D., Li, W. et al. Identification of environment-insensitive genes for **oil content** by combination of transcriptome and genome-wide association analysis in rapeseed. Biotechnol Biofuels 17, 29 (2024). https://doi.org/10.1186/s13068-024-02480-x

Zhao, Q., Wu, J., Lan, L., Shahid, M., Qasim, M. U., Yu, K., ... & Zhou, Y. (2023). Fine mapping and candidate gene analysis of a major QTL for **oil content** in the seed of *Brassica napus*. Theoretical and Applied Genetics, 136(12), 256. https://doi.org/10.1007/s00122-023-04501-z

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Upcoming international and national events

19-20 July, 2024, Nebraska Union City Campus, University of Nebraska-Lincoln, Nebraska, USA:
1st International Camelina Conference
https://icc2024.unl.edu/

10-11 September, 2024, Dresden, Germany:
19th Meeting of the IOBC-WPRS WG "Integrated Control in Oilseed Crops (ICOC)"
& Clubroot Workshop 12 September, 2024
https://iobc-wprs.org/meeting/iobc-wprs-wg-icoc-2024/

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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