

Title of Papers Presented at the 146th Meeting of The JAPANESE SOCIETY OF BREEDING

Oral Presentations

101 *De novo* genome assembly and genomic analysis for characterization of Japanese breeding lines in sugar beet.

☆Hiroki, K.¹, K. Kitazaki¹, T. Narihiro², H. Matsuhira², T. Kubo¹, Y. Kuroda² (1.Graduate School of Agriculture, Hokkaido University, 2.HARC, NARO)

102 Challenges to assemble autotetraploid genomes with long read sequencing

○Naito, K.¹, H. Sakai², H. Yamakawa³, K. Akai⁴ (1.NGRC, 2.NAAC, 3.NICS, 4.HARC/NARO)

103 Whole genome sequencing of *Momordica cochinchinensis* and comparative analysis with genome of *Momordica charantia*.

☆Kawashima, W.¹, H. Matsumura² (1.Grad. Sch. Sci. Tech., Shinshu Univ, 2.Gene Res. Ctr., Shinshu Univ.)

104 Genome analysis of the highly salt-tolerant wild rice *Oryza coarctata*

☆Nishiyama, N., T. Mochizuki, M. Sakamoto, Y. Tanizawa, K. Tsuda, S. Shimizu-Sato, T. Yoshikawa, Y. Nakamura, A. Toyoda, Y. Sato (National Institute of Genetics)

105 Population structure analysis and GWAS of fruit shape traits in hexaploid persimmon cultivars

☆Horiuchi, A.^{1,2}, N. Onoue³, R. Matsuzaki³, M. Minamikawa⁴, K. Nishimura¹, K. Shirasawa⁵, Y. Kubo¹, K. Ushijima¹, T. Akagi¹ (1.Grad. Sch. Environ. LifeSci., Okayama Univ., 2.Grad. Sch. Horticult., Chiba Univ., 3.Inst. Fruit Tree and Tea Sci., NARO, 4.IAAR, Chiba Univ., 5.Kazusa DNA Res. Inst.)

106 Genome sequencing and gene prediction of 16 strawberry varieties in Japan

○Isobe, S.^{1,2}, K. Shirasawa¹, H. Hirakawa^{1,3}, M. Hamano⁴, K. Ryu⁵, T. Kurokura⁶
(1.Kazusa DNA Research Institute, 2.Grad. Sch. Agric. Life Sci., Univ. Tokyo, 3.Fac. Agric.,
Kyushu Univ., 4.Tohoku Agric. Res. Cent., NARO, 5.Fukuoka Pref. Agric. and Forest. Res.
Cent, 6.Utsunomiya Univ., Sch. Agric.)

107 Heterozygosity and ploidy effects on alternative splicing revealed by transcriptome analysis of interspecific tetraploid rice

☆MU, H.¹, T. Furuta¹, N. Kiyotaka¹, Y. Kishima², H. Kato³, Y. Koshiishi⁴, T. Yamamoto¹
(1.IPSR, Grad. Sch. Environ. Life Nat. Sci., Okayama Univ., 2.Grad. Sch. Agr., Hokkaido
Univ., 3.Tokyo Univ. of Agr., 4.Hokkaido Univ.)

108 Identification of genetic loci for tuber dormancy in potato using Polyploid QTL-seq analysis.

○Asano, K.¹, H. Yamakawa², T. Mizubayashi², H. Nakajima¹, K. Akai¹, E. Shimosaka¹, K. Katayama¹ (1.HARC, NARO, 2.Inst. Crop Sci., NARO)

109 Polyploid GWAS reveals the basis of molecular marker development for starch content when associated with important breeding trait in storage root of sweetpotato

○Haque, E.¹, K. Shirasawa², K. Suematsu¹, H. Tabuchi¹, S. Isobe², M. Tanaka¹ (1.Kyu. Oki. Agric. Res. Cent., NARO, Japan, 2.Kazusa DNA Res. Inst., Japan)

110 Development of DNA markers for sweetpotato steamed tuber texture by polyploid QTL-seq

○Yamakawa, H.¹, T. Mizubayashi¹, M. Tanaka² (1.NICS, NARO, 2.KARC, NARO)

111 Construction of genetic linkage map in tetraploid blueberry through dpMIG-seq-based genotyping

☆Nagasaka, K.¹, K. Nishimura^{1,2}, K. Yamagata¹, S. Nishiyama¹, H. Yamane¹, R. Nakano¹, T. Nakazaki^{1,3} (1.Grad. Sch. Agr., Kyoto Univ., 2.Grad. Sch. Environ. Life. Sci. and Tech., Okayama Univ., 3.Office IAC, Kyoto Univ.)

112 Development of breeding selection markers for soybeans and allelic diversity among cultivars bred by the Nagano breeding team.

○Ogiso-Tanaka, E.¹, K. Seki² (1.Ctr. Mol. Biodivers. Res., Natl. Mus. Nat. Sci., 2.Nagano Veg. & Orna. Crops Exp. Sta.)

113 Effects of recurrent selection on genome structure in soybean.

○Yamaguchi, N.¹, H. Igarashi², T. Maruta³, T. Nagayama⁴, A. Kaga⁴ (1.Central Agr. Exp. Sta., HRO, 2.Tokachi Agr. Exp. Sta., HRO, 3.Donan Agr. Exp. Sta., HRO, 4.Inst. Crop Sci., NARO)

114 Development of genomic prediction models to increase the efficiency of tea plant breeding

○Kawaki, J.¹, H. Yamashita^{2,3}, Y. Ishiguro⁴, T. Ikka^{2,3,5}, C. Aoshima¹, Y. Suzuki¹ (1.Tea Res. Cent., Shizuoka Pref., 2.Fac. Agr., Univ. Shizuoka, 3.Shizuoka Univ. Res. Inst. Tea Sci., 4.Grad. Agr., Univ. Shizuoka, 5.Shizuoka Univ. Res. Inst. Green Sci. Tech.)

115 From QTL Analysis to STS Conversion: The Application of GRAS-Di Technology

Suzuki, K.¹, T. Kimura¹, N. Tada¹, T. Furuta², R. Matsushima², H. Enoki¹, ○D. Saisho² (1.TOYOTA MOTOR CORPORATION, 2.IPSR, Okayama Univ.)

116 Identification of QTLs controlling regrowth ability in sorghum

○Takanashi, H., Y. Yamazaki, J. Yamada, M. Ishimori, N. Tsutsumi (Grad. Sch. Agric. Life Sci., Univ. Tokyo)

117 Identification of novel QTLs controlling gibberellin sensitivity during internode elongation in *Oryza Sativa* L.

☆Mizushima, M.¹, R. Sampei¹, V. Reyes¹, K. Doi¹, K. Nagai², M. Ashikari² (1.Graduate School of Bioagricultural Sciences, Nagoya University, 2.Bioscience and Biotechnology Center, Nagoya University)

118 Genome-wide association study and haplotype analysis of sulfur nutrition in rice

☆Yamada, I.¹, C. Zhang¹, H. Maruyama¹, M. Dwiyanthi¹, N. Tanaka², M. Shenton², T. Shinano¹, T. Watanabe¹ (1.Grad. Sch. Agr., Univ. Hokkaido, 2.Inst. Crop Sci., NARO)

119 QTL analysis of hull color of a red rice variety 'Kanniho'

☆Mizutani, T.¹, M. Ikeda¹, K. Nishimura², E. Tanesaka¹, T. Tsukiyama¹ (1.Fac. Agr., Kindai Univ., 2.Grad. Sch. Environ. Life. Nat. Sci. Technol., Okayama Univ.)

120 Comparison of k-mer analysis and Southern blot analysis for confirmation of residual foreign DNA in genome-edited rice lines submitted for registration.

○Komatsu, A.¹, M. Ohtake¹, C. Kanehara¹, H. Sakai² (1.Institute of Agrobiological Sciences, National Agriculture and Food Research Organization, 2.Research Center for Advanced Analysis, National Agriculture and Food Research Organization)

121 Inheritable C-to-T base editing in the rice chloroplast genome

☆Nakazato, I., J. Yamada, N. Tsutsumi, S. Arimura (Grad. Sch. Agri. Life Sci., Univ. Tokyo)

201 Functional analysis of a *tab1* suppressor gene in rice tiller formation

☆Ohyama, A.¹, T. Toriba², W. Tanaka¹ (1.Grad. Sch. Integr. Sci. Life, Hiroshima Univ., 2.Miyagi Univ.)

202 Discovery and analysis of a novel factor that promotes tiller formation in rice

☆Mizugishi, K., S. Nishino, W. Tanaka (Grad. Sch. Integr. Sci. Life, Hiroshima Univ.)

203 Analysis of rice mutants that rescue the defect in axillary bud formation in *tillers absent1*

☆Aimori, S., A. Ohyama, W. Tanaka (Grad. Sch. Integr. Sci. Life, Hiroshima Univ.)

204 Genetic and cytological analyses of a very short awn mutant of barley

○Taketa, S., T. Nishina, M. Shiraga (Research Institute of Plant Science and Resources, Okayama University)

205 Three dimensional live imaging analysis of cellular growth dynamics in the grass leaf primordium

☆Tokuyama, Y.¹, M. Taguchi², R. Kelly-Bellow³, R. Smith³, Y. Kishima⁴, Y. Koide⁴ (1.Graduate School of Agriculture, Hokkaido University, 2.Faculty of Agriculture, Hokkaido University, 3.Department of Computational and System Biology, John Innes Centre, 4.Research Faculty of Agriculture, Hokkaido University)

206 Association of the number of passage cells in the roots of the high-yielding rice cultivar with the conduction resistance and photosynthesis

☆Sumi, K.¹, H. Yamanaka², D. Someno³, H. Morshita¹, S. Minami¹, S. Ishizaki⁴, Y. Watanabe⁵, E. Kameoka⁶, K. Taniyoshi⁷, S. Adachi⁸, K. Noshita³, Y. Tanaka², T. Yamauchi⁹ (1.Grad. Sch. Bioagr. Sci., Nagoya Univ., 2.Grad. Sch. Environ. Life Sci.,

Okayama Univ., 3.Grad. Sch. Sci., Kyushu Univ., 4.Sch. Agric., Okayama Univ., 5.Mitsubishi UFJ Research and Consulting, 6.Grad. Sch. Agric. Sci, Tohoku Univ., 7.Grad. Sch. Agr., Kyoto Univ., 8.Grad. Sch. Agr., Tokyo Univ. Agr. Tech., 9.Biosci. Biotech. Center, Nagoya Univ.)

207 Analysis of the effect of temperature decrease on rice panicle development

☆Makihara, N.¹, S. Nishino¹, A. Ohyama¹, K. Tsuda², T. Toriba³, W. Tanaka¹ (1.Grad. Sch. Integr. Sci. Life, Hiroshima Univ., 2.NIG, 3.Miyagi Univ.)

208 Analysis of the mechanism underlying rice spikelet development in response to temperature decrease

☆Nishino, S.¹, K. Mizugishi¹, A. Ohyama¹, T. Toriba², W. Tanaka¹ (1.Grad. Sch. Integr. Sci. Life, Hiroshima Univ., 2.Miyagi Univ.)

209 Post-transcriptional control by the RNA-binding protein PLA2 in rice plastochron regulation.

○Mimura, M.¹, K. Nonomura², J. Itoh¹ (1.Grad. Sch. Agri. & Life Sci., Univ. Tokyo, 2.Natl. Inst. Genet., NIG)

210 Structural and genetic basis of water repellency in rice leaves

Hiraiwa, A.¹, S. Aiga¹, T. ZHU¹, Y. Sato², ○J. Itoh¹ (1.Grad. Sch. Agric. Life Sci., Univ. Tokyo, 2.Natl. Inst. Genet.)

211 Analysis of 3D growth pattern in primordia of rice husk

☆Miura, S.¹, Y. Tokuyama¹, M. Taguchi², Y. Kishima³, Y. Koide³ (1.Graduate School of Agriculture, Hokkaido University, 2.Faculty of Agriculture, Hokkaido University, 3.Research Faculty of Agriculture, Hokkaido University)

212 Identification of genes contributing to high florigen expression capacity in radish.

☆Motoki, K.¹, K. Nishimura¹, M. Kashima², T. Nakazaki³, R. Nakano⁴, M. Hosokawa^{5,6} (1.Grad. Sch. Environ. Life Nat. Sci. Tech., Okayama Univ., 2.Fac. Sci., Toho Univ., 3.Office of IAC, Kyoto Univ., 4.Grad. Sch. Agr., Kyoto Univ., 5.Fac. Agr., Kindai Univ., 6.Agr. Tech. Innov. Res. Inst., Kindai Univ.)

213 Identification of factors inducing early flowering in *ddm1* mutant of C24 accession in *Arabidopsis thaliana*

☆Kunita, K., R. Fujimoto (Horticultural Crop Propagation., Grad. Sch. Agri. Sci., Univ. Kobe)

214 Detection of candidate locus of *PFE1* controlling flowering time in *Eustoma*

○Kawakatsu, K., N. Fukuta (NIVFS, NARO)

215 Genetic mapping of a novel early-heading QTL with small effects located on chromosome 5H in barley

☆Togai, A.¹, Y. Atsuji², M. Okuma¹, K. Nishimura¹, Y. Monden¹, K. Kato¹, H. Nishida¹ (1.Grad. Sch. Environ. Life Nat. Sci. Tech., Okayama U., 2.Grad. Sch. Environ. Life Sci., Okayama U.)

216 Extremely short period of photoperiod sensitive phase contributes to photo-insensitivity and low temperature tolerance in photo-insensitive rice varieties.

☆Sakaguchi, S.¹, M. Hoque¹, Y. Kishima² (1.Graduate School of Agriculture, Hokkaido University, 2.Research Faculty of Agriculture, Hokkaido University)

217 Genetic analysis of heading date variation in bread wheat using a large segregating population with loss of function of *PCL1*

☆Tamura, T., K. Nishimura, A. Togai, Y. Monden, K. Kato, H. Nishida (Grad. Sch. Environ. Life Nat. Sci. Tech., Okayama U.)

218 Wheat cultivation in a plant factory with artificial lighting (I): Comparison of yield-related traits with conventional cultivation

☆Kuroki, K.¹, S. Yoshioka², M. Takeyama³, W. Guo⁴, S. Nasuda² (1.Grad. Sch. Sci., Univ. Tokyo, 2.Grad. Sch. Agric., Kyoto Univ., 3.PLANTX Corp., 4.Grad. Sch. Agr. Life Sci., Univ. Tokyo)

219 Projection of heat-induced spikelet sterility of rice and evaluation of breeding strategies with micrometeorology model

☆Toda, Y., Y. Ishigooka, M. Yoshimoto, M. Nishimori, T. Takimoto, T. Kuwagata, T. Hasegawa (Inst. Agro-Env. Sci., NARO)

220 The impact of global warming on agriculture in Japan, including rice farming, and its associated increases of precipitation and solar radiation.

☆Honda, K., H. Kato (Tokyo University of Agriculture, Agricultural Innovation for Sustainability)

221 Effect of two genes (*Qsd1* and *Qsd2*) on pre-harvest sprouting tolerance and malting characteristics.

○Kihara, M., T. Zhou, M. Shibamura, M. Nanamori, K. Koie, T. Hoki (Crop Research Laboratories, SAPPORO BREWERIES LTD.)

301 Effect of postharvest short-term storage and storage temperature on sugar and carbohydrate content of sweetpotato varieties.

○Nishinaka, M., K. Taguchi (Central Reg. Agri. Res. Cent., NARO)

302 Underground visualization techniques for root crop phenotyping

☆Tei, M.¹, J. Liu², Y. Uga¹, T. Ishii^{2,3} (1.Inst. Crop Sci., NARO, 2.Arid Land Research Center, Tottori Univ., 3.International Platform for Dryland Research and Education, Tottori Univ.)

303 Researching traits of tea genetic resources in Shizuoka prefecture for use in breeding.

☆Aoshima, C.¹, J. Kawaki¹, Y. Shuzuki¹, M. Sakurai², H. Yamashita^{3,4}, Y. Ishiguro⁵, T. Ikka^{3,4,6} (1.Tea Res. Cent., Shizuoka Pref., 2.Shidahaibara Agr. Forest. Office, Shizuoka Pref., 3.Fac. Agr., Univ. Shizuoka, 4.Shizuoka Univ. Rec. Inst. Tea Sci., 5.Grand. Agr., Univ. Shizuoka, 6.Shizuoka Univ. Res. Inst. Green Sci. Tech.)

304 Influence of soil pH and fertilizer level on grain mineral accumulation in rice MAGIC population

☆ZHANG, Q.¹, T. Furuta¹, K. Kashihara¹, D. Ogawa², J. Yonemaru³, J. Ma¹, T. Yamamoto¹ (1.IPSR, Grad. Sch. Environ. Life Nat. Sci., Okayama Univ., 2.NICS, NARO, 3.RCAIT, NARO)

305 Genetic variation of malic acid content of barley cultivars

☆Amano, K., Y. Nakano, T. Nagamine (CARC, NARO)

306 Clubroot resistance of *Brassica rapa* plants harboring two *NLR* genes localized at *Crr1b*.

○Hatakeyama, K.¹, M. Akitaya¹, M. Takahashi¹, M. Tsukazaki¹, K. Tonosaki², M. Shimizu³, S. Matsumoto⁴ (1.Fac.Agric., Iwate Univ., 2.KIBR, Yokohama City Univ., 3.IBRC, 4.BRAIN)

307 Root specific *Ym2* expression confers resistance to soil-borne *Wheat yellow mosaic virus* in wheat

○Komatsuda, T. (Shandong Academy of Agricultural Sciences)

308 Expression patterns and insensitivity of ribosome-related genes in anthers of cold tolerance rice line at the booting stage

☆Yamamori, K.^{1,2}, Y. Kishima¹ (1.Grad. Sch. Agric., Hokkaido Univ., 2.Grad. Sch. Agric., Kyoto Univ.)

309 Selection method for cold-tolerant lines in rice using anther length under natural field condition

☆Sato, R.¹, A. Zewdu¹, A. Abe², T. Fujioka³, H. Takasago⁴, M. Matsunami⁵, H. Shimono^{5,6} (1.The United Graduate School of Agricultural Sciences-Iwate University, 2.Iwate Biotechnology Research Center, 3.Iwate Prefectural Agricultural College, 4.Iwate Agricultural Research Center, 5.Faculty of Agriculture, Iwate University, 6.Agri-Innovation Center, Iwate University)

310 Cool summer damage and its mitigating measures of rice in Northern Japan caused by the huge volcanic explosive eruptions in the Northern Hemisphere

○KATO, H. (Tokyo University of Agriculture, Department of Agricultural Innovation for Sustainable Society)

312 Expression of plastid genes in cultured tissues of barley

○Hisano, H.¹, J. Kim^{1,2}, N. Nagata³, R. Matsushima¹, S. Fujii⁴, A. Iwase², T. Yaeno⁵, K. Kobayashi⁶ (1.IPSR, Okayama University, 2.CSRS, RIKEN, 3.Fac. Sci., Japan Women's U., 4.Fac. Agric. Life Sci., Hirosaki U., 5.Grad. Sch. Agric., Ehime U., 6.Grad. Sch. Sci., Osaka Metropolitan U.)

313 Study on production of haploid plants by anther culture and microspore culture in *Saintpaulia*.

☆Oka, T., Y. Takahara (Nagaoka University of Technology, Materials Science and Bioengineering)

314 Characterization of male sterility found in super-male spinach plants and the search for candidate genes responsible for the trait.

☆Maeda, S.¹, H. Hirakawa², K. Shirasawa³, S. Isobe³, Y. Onodera⁴ (1.Grad. Sch. Agr., Hokkaido Univ., 2.Fac. Agr., Kyushu Univ., 3.Kazusa DNA Res., 4.Res. Fac. Agr., Hokkaido Univ.)

315 Analysis of RT98-type cytoplasmic male sterility associated mitochondrial genes in rice

☆Kobayashi, A.¹, T. Kazama², S. Arimura³, K. Toriyama¹, K. Igarashi¹ (1.Grad. Sch. Agri., Tohoku Univ., 2.Grad. Sch. Agri., Kyushu Univ., 3.Grad.Sch. Agri. Life Sci., Univ. Tokyo)

316 Engineering tomato fertility restoration lines by mutagenesis and identification of fertility restoration genes

☆Kuwabara, K.¹, R. Nakajima², A. Van Bosstraeten², K. Ezura^{3,4}, K. Toriyama¹, T. Arizumi⁴, K. Shirasawa⁵ (1.Grad. Sch. Agric. Sci., Tohoku Univ., 2.Grad. Sch. Sci. and Tech., Univ. Tsukuba, 3.JIRCAS, 4.Fac. Life Env. Sci., Univ. Tsukuba, 5.Kazusa DNA Res. Inst.)

317 Details of *Rf-like* PPR genes cluster in the fertility restorer line, RT98C derived from wild rice *O. rufipogon* W1109.

☆Igarashi, K.¹, A. Kobayashi¹, T. Kazama², K. Toriyama¹ (1.Grad.Sch. Agri. Sci., Tohoku Univ., 2.Grad. Sch. Agri., Kyushu Univ.)

318 Organelle Genome-Specific Random Mutagenesis Technology by Artificial Fusion Proteins. Detailed analysis of T1 and evaluation of mutation inheritance

☆Kosaka, N.¹, Y. Harada¹, I. Nakazato¹, M. Okuno², T. Itoh³, N. Tsutsumi¹, S. Arimura¹ (1.Grad. Sch. Agri. and Life Sci., Univ. Tokyo, 2.Sch. Med., Univ. Kurume, 3.Sch. Life Sci. and Tech., Tokyo Inst. Tech.)

319 Exploring *Nicotiana benthamiana*FT gene

☆FURUKAWA, N.¹, K. Kurotani², K. Kobayashi¹, M. Notaguchi^{2,3}, H. Kaya¹ (1.Agr., Univ. Ehime, 2.Biosci. Biotech. Center, Univ. Nagoya, 3.Grad. Sch. Sci., Univ. Kyoto)

320 Phenotypic diversity of Ricewheat caused by interaction between rice-wheat hybrid mitochondria and wheat nucleus

☆Sugiura, R.¹, H. Tarutani¹, N. Kamal², M. Tety^{3,4}, T. Okamoto³, T. Ishii^{2,5} (1.Grad. Sch. Sustainability Sci., Univ. Tottori, 2.IPDRE, Univ. Tottori, 3.Grad. Sch. Sci., Univ. Tokyo Metro., 4.Grad. Sch. Math., Univ. Indonesia, 5.ALRC, Univ. Tottori)

401 Differentiable breeding: Automatic differentiation enables efficient gradient-based optimization of breeding strategies

☆Hamazaki, K.¹, H. Iwata², K. Tsuda^{1,3} (1.Adv. Int. Pro., RIKEN, 2.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 3.Grad. Sch. Fro. Sci., Univ. Tokyo)

402 Fusion of remote sensing data collected at different scales through statistical modeling

☆Fukumoto, Y.¹, T. Chen^{1,2}, M. Okada³, Y. Toda⁴, Y. Ohmori¹, Y. Yamasaki⁵, H. Takahashi⁶, H. Takanashi¹, M. Tsuda⁷, W. Guo¹, M. Hirai⁸, H. Tsujimoto⁵, A. Kaga⁹, M. Nakazono⁶, T. Fujiwara¹, H. Iwata¹ (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.Inst. Vegetable and Floriculture Sci., NARO, 3.Sarabetsu Prediction, 4.Inst. Agro-Environmental Sci., NARO, 5.Arid Land Res. Ctr., Tottori Univ., 6.Grad. Sch. Bioagri. Sci., Nagoya Univ., 7.T-PIRC, Univ. Tsukuba, 8.Ctr. for Sustainable Resource Sci., RIKEN, 9.Inst. Crop Sci., NARO)

403 Crossing Strategy Considering Multiple Traits Based on the Ability of Future Inbred Lines in Plant Breeding Programs

☆Sakurai, K.¹, M. Laurence², M. Tristan^{2,3}, I. Hiroyoshi¹, C. Alain² (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.Univ. Paris-Saclay, GQE - Le Moulon, France, 3.Univ. Paris-Saclay, UMR MIA Paris-Saclay, France)

404 Optimization of cross pairs among families with different genetic characteristics to improve multiple traits

☆Kinoshita, S.¹, K. Sakurai¹, K. Hamazaki², T. Tsusaka³, M. Sakurai³, K. Shirasawa⁴, S. Isobe⁴, H. Iwata¹ (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.Adv. Int. Proj., RIKEN, 3.TSUMURA & CO., 4.Kazusa DNA Res. Inst.)

405 Time-series analysis of flowering in *Portulaca umbraticola* using state-space models

○Ishimori, M. (Grad. Sch. Agri. Life Sci., Univ. Tokyo)

406 Rapid flower bud induction in Brassicaceae plants by grafting gibberellin-treated elongated internodes into the flower stem

☆Hara, M.¹, S. Miyashima², M. Yoshizumi¹, R. Kumazawa¹, M. Nishikawa¹, T. Segawa¹, H. Takagi¹ (1.Ishikawa Prefectural University, 2.Ishikawa Prefectural University Research Institute for Bioresources and Biotechnology)

407 Runner grafting in strawberry (*Fragaria* spp.)

☆Tanaka, A., T. Kurokura, S. Bang, T. Ohnishi (Sch. Agr., Univ. Utsunomiya)

408 Statistical Modeling of the Interaction between Scion and Rootstock in Citrus Breeding Population

☆Kimura, S.¹, M. Minamikawa², K. Nonaka³, T. Shimizu³, H. Iwata¹ (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.IAAR, Chiba Univ, 3.NIFTS, NARO)

409 Selection of Brassicaceae seeds by size-independent shape analyses

☆Kimura, H., S. Bang, T. Ohnishi (Grad. Reg. Cre. Sci., Utsunomiya U.)

410 Development of Smart Technology for Cabbage Utilizing Hyperspectral Camera

○Yamagiwa, Y., t. Ohishi (Shizuoka Pref. Inst. of Agri. & Forestry)

411 Verification of rice cultivation in artificial environments using meteorological data and investigation of impact of future global warming

○Itoh, H.¹, H. Yamashita², K. Wada³, J. Yonemaru³ (1.Institute of Crop Science, NARO, 2.Faculty of Agriculture, Sizuoka University, 3.Research Center of Agricultural Information, NARO)

412 Does radial oxygen loss from root affect to root elongation during shoot emergence and rice seedling establishment under submergence?

☆Tamaru, S.^{1,2}, N. Fujiwara³, H. Shiba^{1,2}, K. Shiono^{1,3} (1.Grad. Sch. Biosci. Biotech., Fukui Pref. Univ., 2.JSPS Research Fellow, 3.Dept. Biosci. Biotech., Fukui Pref. Univ.)

413 Dynamics of barley growth and rhizosphere oxidation under waterlogging using spatiotemporal oxygen imaging

☆Shiba, H.^{1,2}, Y. Egami³, M. Dannoura⁴, S. Takanashi⁵, K. Shiono¹ (1.Grad. Sch. Biosci. Biotech., Fukui Pref. Univ., 2.JSPS Research Fellow, 3.Dept. Mech. Eng., Aichi Inst. Tech., 4.Grad. Sch. Agr., Kyoto Univ., 5.Kansai Res. Centre, FFPRI)

414 Low nitrate under waterlogging triggers enhancement of root aeration system in rice roots

○Shiono, K., M. Ejiri, Y. Egishi, H. Yoshida, Y. Sawazaki, T. Tsunoda (Fac., Biosci. Biotech., Grad. Sch., Fukui Pref. Univ.)

415 Analysis of the SCARECROW-mediated regulatory mechanisms of the number of root cortical cell layers in rice roots in response to low oxygen

☆Minami, S.¹, K. Tsuda², T. Yamauchi³ (1.Grad. Sch. Bioagr. Sci., Nagoya Univ., 2.National Institute of Genetics, 3.Biosci. Biotech. Center, Nagoya. Univ.)

416 Tissue-specific regulation of strigolactone biosynthesis in rice roots under phosphate starvation

☆Morishita, H.¹, K. Sumi¹, R. Sugita², T. Suzuki³, T. Izawa⁴, K. Yoneyama⁵, T. Yamauchi⁶ (1.Grad. Sch. Bioagr. Sci., Nagoya Univ., 2.Radioisotope Res. Center, Nagoya Univ., 3.Grad. Sch. Biosci. Biotech., Chubu Univ., 4.Grad. Sch. Agric. Life Sci., Univ. Tokyo., 5.Res. Dev. Bureau, Saitama Univ., 6.Biosci. Biotech. Center, Nagoya Univ.)

417 Effects of acid or alkaline soils on agronomic traits in barley

☆Shirato, H.¹, D. Saisho^{1,2}, H. Hisano^{1,2} (1.Grad. Sch. Environ. Life Sci. Nat., Okayama Univ., 2.IPSR, Okayama Univ.)

418 Mapping of the quantitative trait locus *Na-QTL1*, involved in the Na⁺ exclusion from leaf blades of rice under salinity stress.

☆Ishii, Y.¹, R. Ishikawa², N. Kobayashi³, H. Matsumura⁴, Y. Amarasinghe⁵, K. Tanoi³, T. Ishii², T. Horie¹ (1.Grad. Sch., Div. Appl Biol., Shinshu Univ., 2.Grad. Sch., Agric Sci., Kobe Univ., 3.Grad. Sch., Agric. Life Sci., Univ. Tokyo., 4.Grad. Sch. Sci. Tech., Shinshu Univ., 5.GLORDC, Sri Lanka)

419 Cell physiological roles of lupeol and betulinic acid accumulated in secondary aerenchyma of soybean

☆Jitsui, M.¹, C. Abo¹, M. Fanani², T. Oi³, A. Agata¹, T. Muranaka², M. Nakazono¹, H. Seki², H. Takahashi¹ (1.Grad. Sch. Bioagri. Sci., Nagoya Univ, 2.Grad. Sch. Eng., Osaka Univ, 3.Sch. Eng. Sci., Kochi Univ. Tech.)

501 Self-incompatibility phenotypes of SRK mutants can be predicted with high accuracy

○Yamamoto, M.¹, S. Ohtake¹, A. Sinozawa², M. Shirota³, Y. Mitsui⁴, H. Kitashiba¹ (1.Graduate School of Agricultural Science, Tohoku University, 2.NODAI Genome Research Center, Tokyo University of Agriculture, 3.Graduate School of Medicine, Tohoku University, 4.Graduate School of Agricultural Science, Tokyo University of Agriculture)

502 Independence of female receptors in self-incompatibility(SRK) and unilateral incompatibility(SUI1) in *Brassica rapa*.

○Takada, Y.¹, K. Murase², J. Park^{1,3}, G. Suzuki⁴, S. Takayama², M. Watanabe¹ (1.Grad. Sch. Sci., Tohoku Univ., 2.Grad. Sch. Agr. Sci., Univ. Tokyo, 3.Sunchon Natl. Univ., 4.Osaka-kyoiku Univ.)

503 Transcriptome analysis of the hybrid endosperm overcoming the hybridization barrier in an interspecific cross with wild rice

☆Sakurai, F.¹, E. Kurosaka², H. Furuumi³, Y. Sato³, K. Hatakeyama², K. Tonosaki¹, T. Kinoshita¹ (1.KIBR, Yokohama City Univ., 2.Fac. Agri., Iwate Univ., 3.NIG)

504 Maize-wheat cybrid plants (Zeawheat): genome composition and intergenerational transmission

☆Onda, N.¹, A. Satoh¹, F. Nowroz¹, K. Kobayashi¹, T. Maryenti¹, T. Ishii², T. Okamoto¹ (1.Dept. Biol., Tokyo Met. Univ., 2.ALRC., Tottori Univ.)

505 Production of amphidiploids between cultivated rice and distantly related wild *Oryza* and transmission of heterogeneous genomes to progeny

☆Ono, S.¹, Y. Sato², T. Okamoto¹ (1.Grad. Sch. Dept. Biol., Tokyo Met. Univ., 2.Dept. Gen. Evol., NIG.)

506 Relationship between developmental progression and allo genomic situation in rice-setaria hybrid zygotes.

☆Tamaya, K., A. Sato, T. Okamoto (Life science, Tokyo Metropolitan University)

507 QTL analysis of hybrid sterility and yield-related traits in BC₁F₁ derived from a cross between Asu as the donor parent and Taichung 65 as the recurrent parent

☆Ogihara, S.¹, Y. Nakamura¹, T. Kojo², T. Sakamoto², K. Ichitani², N. Asagi¹, T. Kuboyama¹ (1.Grad. Sch. Agr., Ibaraki U, 2.Grad. Sch. Agr. Forest. Fish., Kagoshima U)

508 Genetic mapping and candidate gene analysis of *thb2* causing hybrid breakdown in a cross between *japonica* rice cultivars.

☆Wakabayashi, T., N. Awazaki, S. Iizuka, K. Kato (Obihiro University of Agriculture and Veterinary Medicine)

509 Fertility-related QTL and segregation distortion in tetraploid rice

☆Kamachi, I.¹, S. Okada¹, N. Kataoka², Z. Myint¹, Y. Kishima³, Y. Koide³ (1.Graduate School of Agriculture, Hokkaido University, 2.Faculty of Agriculture, Hokkaido University, 3.Research Faculty of Agriculture, Hokkaido University)

510 Genome-wide analysis of segregation distortion in progenies of an inter-specific hybrid tetraploid rice

☆Oka, T.¹, T. Furuta¹, K. Kashihara¹, H. Mu¹, Y. Kishima², K. Nagaki¹, T. Yamamoto¹ (1.IPSR, Grad. Sch. Environ. Life Nat. Sci., Okayama Univ., 2.Grad. Sch. Agr., Hokkaido Univ.)

512 Effect of sowing density of a photoperiod sensitive cytoplasmic male sterile line on F₁ seed production

○Murai, K.¹, H. Tada¹, Y. Takenouchi² (1.Dept. Sust. Agri-Culture, Fukui Pref. U., 2.Agr. Res. Inst., HOKUREN)

513 Breeding of Miyazaki's original vegetable "Hyuga Kabocha" ~ Obtainment of a new variety "Nankyu Black Ball No. 3 Go" by interspecific hybridization ~

○Chen, L.^{1,2}, K. Goto², Y. Iwamoto², T. Fukuda¹, S. Joka¹, K. Hori¹, M. Matsuse¹, T. Nariki¹, R. Kubata¹ (1.Fac. Envir. Hort. Sci., Minami Kyushu U., 2.Grad. Sch. Hort. & Food Sci., Minami Kyushu U.)

514 Developing 'Yumemizuhō ER': introducing early heading date and partial rice blast resistance into 'Yumemizuhō' in Ishikawa Prefecture

☆Takata, M.^{1,2}, M. Sakemoto¹, K. Kontani¹, R. Harada², M. Ino², K. Nakamura², H. Hatanaka², K. Okada², H. Takagi¹ (1.Ishikawa Prefectural University, 2.Ishikawa Agriculture Research Center)

515 Evaluation of yield phenotypic potential in common buckwheat for genetic improvement of NUS

○Hara, T.¹, H. Habara², S. Njane¹, S. Otsuka¹, A. Itoh¹, K. Ishiguro¹, K. Matsushima³ (1.HARC., NARO, 2.Grad. Sch. Sci. Tech., Shinshu Univ., 3.Inst. Agric. Acad. Assy. Fac., Shinshu Univ.)

516 Effect of loci related to total soluble solids in the Japanese netted melon and their origin

☆Yamanaka, M.¹, N. Sato¹, G. Shigita^{2,3}, M. Okuma⁴, R. Ishikawa¹, H. Nishida⁴, K. Kato⁴, K. Tanaka¹ (1.Fac. Agr. Life Sci., Hirosaki Univ., 2.Tech. Univ. Munich, 3.Life Environ. Sci., Univ. Tsukuba, 4.Grad. Sch. Environ. Life Nat. Sci. Tech., Okayama Univ.)

517 Estimating fruit traits QTLs in two Japanese melon landraces of Makuwa and Conomon

☆Nakajima, K.¹, G. Shigita^{2,3}, M. Okuma⁴, R. Ishikawa¹, H. Nishida⁴, K. Kato⁴, K. Tanaka¹ (1.Fac. Agr. Life Sci., Hirosaki Univ., 2.Tech. U. Munich, 3.Life Environ. Sci., Univ. Tsukuba, 4.Grad. Sch. Environ. Life Nat. Sci. Tech., Okayama U)

518 Production of a *Staphylococcus aureus*-specific antimicrobial protein lysostaphin in rice and evaluation of its amount among different subcellular localization

☆Kayukawa, H., S. Shimoda, H. Yoneyama, Y. Ito (Grad. Sch. Argi., Tohoku Univ.)

519 Towards agricultural utilization of non-flowering rice

☆Miyazaki, K., M. Suzuki, N. Nishide, S. Hashimoto, R. Morita, N. Aoki, T. Izawa (Grad. Sch. Agr. Life Sci., Univ. Tokyo)

520 Origin of a transposon inserted in the 5' UTR of the *ROL barrier formation1* gene in *Zea* sp.

☆Shishido, K.¹, K. Ide¹, H. Takahashi¹, A. Agata¹, H. Takahashi², F. Omori³, Y. Mano³, M. Nakazono¹ (1.Grad. Sch. Bioagric. Sci., Univ. Nagoya, 2.Fac. Food Agri. Sci., Fukushima Univ., 3.Inst. Livest. Grassl. Sci., NARO)

521 Variation in flowering traits in Taro (*Colocasia esculenta* Schott) cultivars in relation to vegetative traits and phylogeny

☆Iijima, Y.¹, Y. Mitsui¹, T. Konishi² (1.Grad. Sch. Agri., Tokyo Univ. Agri., 2.Res. Inst. Evol. Biol.)

601 Possibility that senescence-related genes are involved in decreased heterosis level by DDM1 dysfunction and reduced leaf area due to shade avoidance syndrome

☆Nishimura, K., R. Fujimoto (Kobe University, Graduate School of Agricultural Science, Kobe, Japan)

602 Genome editing using a compact and highly efficient engineered AsCas12f in plants

○Saika, H.¹, K. Ishibashi¹, S. Sukegawa¹, M. Endo¹, N. Hara¹, O. Nureki², S. Toki^{1,3,4,5} (1.Inst. Agrobiol. Sci., NARO, 2.Grad. Sch. Sci., Univ. Tokyo, 3.Grad. Sch. Nanobioscience, Yokohama City Univ., 4.KIBR, Yokohama City Univ., 5.Fac. Agr., Ryukoku Univ.)

603 Fine-tuning *TAWAWA1*-mediated panicle architecture by genome editing of a downstream conserved noncoding sequence in rice

Kuroha, T.¹, F. Lombardo¹, W. Iwasaki², S. Chechetka¹, Y. Kawahara³, A. Yoshida², J. Kyozuka², T. Makino², ○H. Yoshida¹ (1.Inst. Agrobiological Sci., NARO, 2.Grad. School Life Sci., Tohoku Univ., 3.Adv. Anal. Ctr., NARO)

604 Screening of a gene that determines saccharification yields from rice straws by overexpression of the candidates

☆Yamaguchi, M., A. Ono, Y. Ito (Grad. Agri. Sci., Tohoku Univ.)

605 Evaluating Transgenic Plant Selection with Streptomycin Resistance Gene in *Arabidopsis thaliana* and *Marchantia polymorpha*

☆Miki, A.¹, J. Akiyama¹, M. Shimatani¹, A. Ishikawa², K. Kobayashi¹, R. Nishihama², H. Kaya¹ (1.Plant Molecular Biology and Virology, Department of Food Production Science, Faculty of Agriculture, Ehime University, 2.Department of Applied Biological Science, Faculty of Science and Technology, Tokyo University of Science)

606 Genome editing of *CAD* gene involved in lignin biosynthesis in bahiagrass –Morphology and fiber composition in segregating populations of *CAD* mutant loci–

○Goudo, T.¹, A. Watajima², R. Ikegame³ (1.FSRC, Univ. Miyazaki, 2.Grad. Sch. Agr., Univ. Miyazaki, 3.Fac. Agric., Univ. Miyazaki)

607 Genome editing of SPA in bread wheat to alter gluten composition

☆Sakurai, S.^{1,2}, N. Kawano^{1,2}, S. Sakoguchi², H. Ogawa^{1,2}, Y. Kamiya², K. Kawaura² (1.Sch. Sci., Yokohama City Univ., 2.KIBR, Yokohama City Univ.)

608 Characterization of high frequency chromosomal mutations observed in the cross of *Nicotiana amplexicaulis* × *N. tabacum*

☆Nakata, K.¹, T. Tezuka², M. Kanekatsu¹, T. Yamada¹ (1.United Grad. Sch. Agr., Tokyo U. Agr. Tech., 2.Grad. Sch. Agr., Osaka Metro. Univ.)

609 The impact of a partial chromosome duplication on the *Arabidopsis thaliana* genome

☆Nishijima, R.¹, J. Fawcett², T. Sakamoto³, Y. Ugai¹, T. Hyodo¹, K. Sugita¹, T. Ikoma¹, Y. Tsujimoto-Inui⁴, H. Tanaka⁵, T. Itoh⁵, T. Abe⁶, S. Matsunaga⁴, Y. Kazama^{1,6} (1.Grad. Sch. Biosci. Biotech., Fukui Pref. Univ., 2.RIKEN iTHEMS, 3.Dept. Sci., Kanagawa Univ., 4.Grad. Sch. Front. Sci., Univ. Tokyo, 5.Sch. Life Sci. Tech., Tokyo Tech. Univ., 6.RIKEN Nishina Cent.)

610 Live cell imaging of pollen mitosis in wheat to reveal chromosome breakage patterns induced by gametocidal genes

☆Usumoto, S.¹, K. Murata¹, H. Kakui², Y. Sato³, S. Nasuda¹ (1.Grad. Sch. Agric., Kyoto Univ., 2.Grad. Sch. Agric. Life Sci., Univ. Tokyo., 3.WPI-ITbM, Nagoya Univ.)

612 Genomics and transcriptomics of natural variation in tea catechin biosynthesis.

☆Funakawa, N.¹, H. Yamashita^{1,2,3,4}, Y. Ishiguro³, J. Kawaki⁵, T. Ikka^{1,2,3,4,6} (1.Grad. Agr., Shizuoka Univ., 2.Fac. Agr., Shizuoka Univ., 3.Uni. Agr., Gifu Univ., 4.Res. Inst. Tea Sci., 5.Tea Res. Cent., Shizuoka Pref., 6.Res. Inst. Green Sci. Tech., Shizuoka Univ.)

613 Validation of genomic estimated breeding values in large-scale tea germplasm

☆Ishiguro, Y.¹, H. Yamashita^{1,2,3}, J. Kawaki⁴, A. Nagano^{5,6}, T. Ikka^{1,2,3,7} (1.Uni. Agr., Gifu Univ., 2.Fac. Agr., Shizuoka Univ., 3.Shizuoka Univ. Res. Inst. Tea Sci., 4.Shizuoka Tea Res. Cent., 5.Fac. Agr., Ryukoku Univ., 6.Inst. Adv. Biosci., Keio Univ., 7.Shizuoka Univ. Res. Inst. Green Sci. Tech.)

614 Association analysis of metabolomic data in soybean for metabolic pathway and genomic region by metabolome GWAS

☆Hatta, T.¹, Y. Fuji², Y. Toda³, Y. Ichihashi⁴, Y. Oomori¹, Y. Yamasaki¹, H. Takahashi⁵, H. Takanashi¹, M. Tsuda⁶, H. Tsujimoto⁷, A. Kaga⁸, M. Nakazono⁵, T. Fujiwara¹, M. Hirai², H. Iwata¹ (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.RIKEN Ctr. for Sustainable Sci., 3.Institute for Agro-Environmental Sci., NARO, 4.RIKEN BioResource. Res. Ctr., 5.Grad. Sch. Bioagri. Sci., Nagoya Univ., 6.Faculty of Food and Nutritional Sci., Toyo Univ., 7.Arid Land Res. Ctr., Tottori Univ., 8.Inst. Crop Sci., NARO)

615 Comparative proteomic analysis of dormant and non-dormant embryos in embryonic dormancy of rice seeds

☆Ishikawa, T.¹, K. Murata², T. Yamada¹, M. Kanekatsu¹ (1.Grd. Sch. Agr., Tokyo U. Agr. Tec., 2.Toyama Pref. Agr. Forest. Fish. Res. Cent.)

617 A time-lapse transcriptomic approach uncovers transitions of the regulatory networks in kiwifruit ripening.

☆Kuwada, E., S. Higashiyama, T. Matsuda, K. Ushijima, T. Akagi (Grad. Sch. Environ. & Life Sci, Okayama University)

618 Development of the database for ' Lineage - Growth Environment - Phenotype'

○Ichihara, H., S. Isobe (Kazusa DNA Research Institute)

619 Construction of an RNA-seq database for pearl millet and its application to functional analysis of pearl millet genes

☆Kambara, K.¹, M. Qazi¹, S. Gupta², T. Takano¹, D. Tsugama¹ (1.Grad. Sch. Agr., Univ. Tokyo, 2.ICRISAT)

620 Pedigree data analysis using "Pedigree Finder" - visualization of multiple-trait transmission and development of distributed version -

○Kajiya-Kanegae, H.^{1,2}, K. Matsushita², J. Yonemaru¹ (1.RCAIT, NARO, 2.NICS, NARO)

Poster Presentations

P101 Production and analysis of multiple genome editing rice using an original plasmid set and a method for high-density crop hydroponics in a plant incubator

○Kuroda, M., H. Park, T. Oikawa, M. Chiba (Inst. Agrobiol. Sci. NARO)

P102 Development of Eucalyptus Commercial Clones through Selective Breeding Technology using Genomic Information (Genomic Selection)

☆SHINYA, T. (NIPPON PAPER INDUSTRIES CO., LTD. Research Laboratory)

P103 Investigation of breeding value prediction using multi-trait and multi-environment models

☆Kinami, A., A. Onogi (Grad. Sch. of Agri., Ryukoku Univ.)

P104 Development of an objective evaluation method for the curling of perilla leaves using a convolutional neural network

☆Chen, T.¹, S. Kinoshita¹, M. Okada¹, Y. Imachi¹, K. Sakurai¹, T. Tsusaka², M. Sakurai², K. Shirasawa³, S. Isobe³, H. Iwata¹ (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.TSUMURA & CO., 3.Kazusa DNA Res. Inst.)

P105 UAV time-series analysis by R package phenocrop

☆Taniguchi, S.¹, T. Sakamoto², D. Ogawa³ (1.Research Center for Agricultural Information Technology, NARO, 2.Institute for Agro-Environmental Sciences, NARO, 3.Institute of Crop Science, NARO)

P106 Establishment of an interspecific hybridization method in *Pennisetum* species with trifluoromethanesulfonamide (TFMSA)

☆Terada, K.¹, Y. Sekiguchi², T. Ishii^{3,4} (1.Grad. Sch. of Sustainability Sci., Tottori U, 2.United Grad. Sch. Agricultural Sci., Tottori U, 3.Arid Land Research Center, Tottori U, 4.International Platform for Dryland Research and Education (IPDRE), Tottori U)

P107 Identification of novel *S-RNase* alleles in potato (*Solanum tuberosum* L.) and attempt to silence *S-RNase* by inoculation of double-strand RNAs.

☆Akai, K. (HARC, NARO)

P108 Doubly late-flowering phenotype obtained by integration of two spontaneous variants of Koshihikari

☆Sugihara, H., M. Tomita (Res. Inst. Green Sci. & Technol., Shizuoka Univ.)

P109 Breeding a high yielding soybean variety, "Soramizuki", developed from a contemporary U.S. variety.

○Kato, S.¹, E. Aoki¹, Y. Nanjo², M. Saruta³, R. Yamazaki¹, K. Takahashi¹, T. Yamada⁴, A. Hishinuma², K. Hirata¹ (1.Institute of Crop Science, NARO, 2.Tohoku Agricultural Research Center, NARO, 3.Western Region Agricultural Research Center, NARO, 4.Research Center for Agricultural Information Technology, NARO)

P110 Chromosome instability in synthetic octaploid wheat produced by wild hybridization between bread wheat and *Aegilops tauschii*

☆GAO, Y.¹, M. Kishii², Y. Matsuoka³, H. Tsujimoto⁴, S. Sakuma⁵, T. Ishii^{4,6} (1.United Graduate School of Agricultural Sciences, Tottori University, 2.Japan International Research Center for Agricultural Sciences (JIRCAS), 3.Graduate School of Agricultural Science, Kobe University, 4.Arid Land Research Center (ALRC), Tottori University, 5.Faculty of Agriculture, Tottori University, 6.International Platform for Dryland Research and Education (IPDRE), Tottori University)

P111 A method to breed fertile interspecific hybrids between Asian and African rice via tetraploidization and haploid induction

☆Kuniyoshi, D.¹, M. Ishihara², Y. Shimazaki², Y. Sato³, Y. Kishima² (1.Tropical Agriculture Research Front, JIRCAS, 2.Grad. Sch. Agr., Univ. Hokkaido, 3.Hokkaido Agricultural Research Center, NARO)

P112 Can exotic Johnson grass be a genetic resource for improving the underground part of cultivated sorghum?

Yamada, C.¹, S. Okada², S. Hashimoto³, S. Nakamura-Araki², K. Shinohara-Ohmae², S. Kasuga⁴, ○T. SAZUKA² (1.Grad. Sch. Bioagri., Nagoya Univ., 2.Bio. Biotech. Center, Nagoya Univ., 3.Grad. Sch. Agric. Life Sci., U. Tokyo., 4.AFC, Fac. Agri. Shinshu Univ.)

P113 Development of DNA markers for selecting cassava resistant to cassava mosaic disease and investigating genetic resources in Southeast Asia

☆Tokunaga, H. (JIRCAS)

P114 Establishment of an RNA analysis pipeline without the use of liquid nitrogen or deep freezer and an RNA sequencing using rice samples obtained in Madagascar

○Ueda, Y.¹, R. Diary², T. Rajonandraina^{2,3}, T. Radanielina² (1.JIRCAS, 2.Antananarivo University, Department of Plant Biology and Ecology, 3.Antananarivo University, Laboratory of Radioisotopes)

P115 Diversity of environmental stress tolerance of rice genetic resources

○Saito, H., M. Obara (JIRCAS)

P116 Diversity of morphological and agronomic traits in the Erianthus genetic resources of Thailand.

○Terajima, Y.¹, W. Ponragdee², A. Tippayawat², S. Chanachai², T. Sansayawichai², H. Takagi¹, A. Sugimoto¹, s. Ando¹ (1.JIRCAS, 2.Khon Kaen Field Crops Research Center)

P117 Genetic diversity of floating rice in the Mekong River Basin

○Dinh, T.¹, T. Le², T. Dang², R. Ishikawa¹ (1.Faculty of Agriculture and Life Science, Hirosaki University, Japan, 2.Climate Change Institute, An Giang University, Vietnam National University Ho Chi Minh City, Vietnam)

P118 Upland rice genetic resource of Lao.PDR; its collection, evaluation and utilization

○ASAI, H.¹, T. Takai¹, H. Saito¹, A. Oo¹, K. Maruyama¹, V. Koukham², P. Sengthong² (1.JIRCAS, 2.NAFRI)

P119 Towards breeding early-maturing quinoa lines in Bolivia and Japan

○Nagatoshi, Y.¹, Y. Yasui², K. Nishimura⁴, K. Fujii⁵, J. Tanaka³, T. Ogata¹, Y. Kobayashi¹, M. Gutema⁶, E. Nishihara⁶, M. Tsubo⁷, A. Bonifacio⁸, Y. Fujita^{9,10} (1.Biol. Resources Post-harvest Div., JIRCAS, 2.Grad. Sch. Agri., Kyoto Univ., 3.Crop Livestok Environ. Div., JIRCAS, 4.Grad. Sch. Environ. Life Nat. Science Tech., Okayama Univ., 5.Div. Crop Genome Edit., NIAS, 6.Faculty Agri., Tottori Univ., 7.IPDRE., Tottori Univ., 8.Fundación PROINPA in Bolivia, 9.Grad. Sch. Life Environ. Sci., Univ. Tsukuba, 10.Food Program, JIRCAS)

P120 Diversity of mango genetic resources

○Yamanaka, S.¹, M. Shoda², H. Takagi¹, T. Yamamoto³ (1.JIRCAS, 2.OPARC, 3.NARO)

P122 Analysis of genetic differentiation and heading date diversity in wild emmer wheat collected from Israel

☆Chang, Y.¹, K. Nishimura², M. Kakusaka³, K. Murata¹, T. Tamura², Y. Iwahashi¹, K. Motoki², K. Nagasaka¹, T. Maki¹, Y. Kinoshita¹, R. Nakano¹, H. Inoue¹, Y. Monden², K. Kawaura³, N. Mori⁴, E. Nevo⁵, K. Kato², H. Nishida², T. Nakazaki^{1,6} (1.Grad. Sch. Agr., Kyoto Univ., 2.Grad. Sch. Environ. Life Nat. Sci. Tech., Okayama U., 3.KIBR, Yokohama City Univ., 4.Grad. Sch. Agr. Sci., Kobe Univ., 5.IoE, Univ. of Haifa, 6.Office of IAC, Kyoto Univ.)

P123 Population genetic estimation of genomic region and origin for small-fruit cultivars of Japanese apricot

☆Numaguchi, K.¹, Y. Kitamura², T. Kashiwamoto³, T. Morimoto⁴, T. Oe³ (1.Grad. Sch. Agr. Sci., Kobe Univ., 2.Facul. Agr., Setsunan Univ., 3.Japanese Apricot Lab., Wakayama Fruit Tree Exp. Sta., 4.Grad. Sch. Life and Env. Sci., Kyoto Pref. Univ.)

P124 Comparing genome structures between *Fragaria* × *ananassa* cultivars based on genomic regions from *F. chiloensis* and *F. virginiana*

☆Yoshizumi, M.¹, Y. Machi¹, S. Saiga^{1,2}, H. Takagi¹ (1.Ishikawa Prefectural University, 2.Takii and Company, Limited)

P125 Possible effect of Pollen Tube Elongation Gene Mutation on Segregation Distortion in the Progeny from Cross between Asian Rice and Australian Wild Rice

☆Shibata, Y.¹, K. Katano², R. Takahashi¹, Y. Maeda¹, S. Taura³, R. Henry⁴, R. Ishikawa⁵, K. Ichitani⁶ (1.Grad. Sch. Agr. Forest. Fish., Kagoshima Univ., 2.Takii & CO., LTD, 3.Inst. Gene Res., Kagoshima Univ., 4.QAAFI, Univ. of Queensland, 5.Fac. Agr. and Life Sci., Hirosaki Univ., 6.Fac. Agr., Kagoshima Univ.)

P126 Genetic characterization of landrace buckwheat in the Shinshu area collected before the 2000s via MIG-seq analysis

☆Kondo, F.^{1,2,3}, S. Masuda³, K. Yamane³, H. Maruyama⁴, S. Murayama⁴, K. Nemoto³, V. Palombo⁵, M. D'Andrea⁵, K. Matsushima³ (1.Kyoto Univ., 2.JSPS Research Fellowship for Young Scientists, 3.Shinshu Univ., 4.Nagano Veg. Orn. Crops Exp. Stn., 5.Univ. Molise)

P127 Genetic characterization of *Hemerocallis* species in Samegawa Village, Fukushima

○Sasanuma, T.^{1,2}, N. Saito¹, K. Tamagawa^{1,2}, Y. Sato¹, Y. Osafune³, T. Sugawara³, S. Kishimoto^{3,4} (1.Fac. Agr., Yamagata Univ., 2.Grad. Sch. Agr., Yamagata Univ., 3.Mt. Chokai and Tobishima island Geopark Promotion Council, 4.Fac. Life Design, Tohoku Inst. Tech.)

P128 Morphological diversity of seed starch granules in *Vigna* species

○Matsushima, R., J. Yamashita (Institute of Plant Science and Resources, Okayama University)

P129 Evaluation of the degree of seed shattering and awn length in Japanese upland rice core collection

☆Yabu, K., K. Mikumo, T. Ishii, R. Ishikawa (Grad. Sch., Agr. Sci., Kobe Univ.)

P130 Evaluation of quantitative trait loci associated with awnlessness in cultivated rice, *Oryza sativa* IR36 and Nipponbare

☆Terada, H., H. Tanaka, P. Yaddehige, A. Yamamoto, R. Ishikawa, T. Ishii (Grad. Sch., Agr. Sci., Kobe Univ.)

P131 Wild and cultivated allele effects at *PROG1* and *TAC1* loci for plant architecture in rice

☆Ushirozako, M.¹, Y. Tokuyama², Y. Koide², T. Ishi¹ (1.Grad .Sch., Agr. Sci., Kobe Univ., 2.Res. Fac. Agr., Hokkaido Univ.)

P132 Effect of selection based on medicinal ingredient paeoniflorin content and yield in *Paeonia lactiflora*

☆Kawashimo, M., T. Tsusaka, M. Sakurai (Tsumura & Co.)

P133 Characterization of safflower genetic resources based on basic morphological traits

☆Hosono, K.¹, S. Kimura², H. Suzuki², K. Toyama², T. Sasanuma^{1,2} (1.Grad. Sch. Agr., Yamagata Univ., 2.Fac. Agr., Yamagata Univ.)

P134 Haplotype heredity of chromosome 4 in Japanese peach cultivar breeding

☆Iwamoto, M.¹, M. Minamikawa², R. Nakano³, D. Takada⁴, T. Kawai¹, F. Fukuda¹, Y. Unoki⁵, K. Oda⁶, K. Ushijima¹ (1.Grad. Sch. Env, Life, Nat Sci., & Tech., Okayama. Univ, 2.IAAR., Chiba. Univ, 3.Grad. Sch. Agri., Kyoto. Univ, 4.Fac. Food., & Agri Sci., Fukushima. Univ, 5.Inst. Agri Res., Okayama Pref., 6.RIBS Okayama)

P135 Identification of an early-flowering mutant in Indonesian native rice cultivar: 'Gemdjah Beton'

☆IMIHAMAMI MUDIYANSELAGE, A.¹, R. Morita¹, H. Ichida¹, Y. Hayashi¹, Y. Shirakawa¹, T. Sato^{1,2}, Y. Fukuta³, K. Toriyama², H. Saito⁴, Y. Okumoto⁵, T. Abe¹ (1.Nishina Cen., RIKEN, 2.Grad. Sch. Agri. Sci., Univ. Tohoku, 3.Fac. Agri. Univ., Ryukyus, 4.Trop. Agri. Res. Front., JIRCAS, 5.Fac. Agri. Univ., Setsunan)

P136 Target genotyping using GRAS-Di technology in Barley

○Suzuki, K.¹, T. Kimura¹, N. Tada¹, T. Furuta², R. Matsushima², H. Enoki¹, D. Saisho² (1.TOYOTA MOTOR CORPORATION, 2.IPSR,Okayama Univ.)

P137 Verification of epistasis on sorghum heterosis

○Okada, S.¹, S. Araki-Nakamura¹, K. Ohmae-Shinohara¹, S. Kasuga², T. Sazuka¹ (1.Biosci. and Biotech. Center, Nagoya Univ., 2.AFC, Fac. of Agri. Shinshu Univ.)

P138 Development of a user-friendly GUI-based QTL-seq analysis tool

☆Sakemoto, M., T. Segawa, M. Takada, M. Hara, K. Miyaki (Ishikawa Prefectural University)

P139 QTL analysis of free amino acids regulated good eating quality of Dadachamame

☆Shioya, N.¹, H. Abe², A. Miyagi^{1,2}, M. Kawai³, E. Ogiso-Tanaka⁴, T. Hoshino^{1,2} (1.Grad. Sch. Agr., Iwate Univ., 2.Fac. Agr., Yamagata Univ., 3.Grad. Sch. Sci. Eng., Saitama Univ., 4.Ctr. Mol. Biodivers. Res., Natl. Mus. Nat. Sci.)

P140 Estimation of loci involved in non-seed-shattering behaviour of *japonica* rice cultivar, 'Asahi'

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P141 QTL-seq and fine-mapping of the low-amylose gene *du-2*

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P142 Estimation of genetic loci for stolon production ability in wild rice, *Oryza rufipogon*

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P143 Genetic analysis of light-independent anthocyanin accumulation in the Brassica rapa cultivar "Akamaru" excluding the effect of *BrMyb2* locus

☆Miyaki, K., T. Segawa, R. Kumazawa, M. Hara, H. Takagi (Ishikawa Prefectural University)

P144 QTL analysis of Candidate Regions Associated with Ovule Number in *Raphanus sativus* L.

☆JI, J., H. XUE, X. ZHU, M. YAMAMOTO, H. KITASHIBA (Grad. Sch. of Agri. Sci., Univ. Tohoku)

P145 Genetic effects of allelic combinations for starch biosynthesis genes by using multiple mutant lines in rice.

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P146 Comparison of genomic prediction accuracy for fruit traits in citrus using Graphite and Beagle softwares.

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P147 Analysis of the white pollen mutant *wpo1* in *Chrysanthemum seticuspe* and mapping of the causal gene

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P148 Isolation and functional analysis of the rice stay-green gene *DYE2*

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P149 Regulation of polyphenol oxidase and vacuolar invertase activities in potato variety by genome editing

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P150 A rice mutant exhibiting dominant early-flowering phenotype possessed complex structural variation.

○Morita, R.¹, H. Ichida¹, Y. Hayashi¹, Y. Shirakawa¹, K. Ichinose¹, T. Sato^{1,2}, K. Toriyama², T. Abe¹ (1.RIKEN, Nishina Cent., 2.Grad. Sch. Agri. Sci., Tohoku Univ.)

P151 Identification of a gene responsible for white bulb color in onion.

○Himi, E.¹, K. Kanazawa¹, M. Nishino², J. Kitagawa², S. Kobayashi¹ (1.Sch. Agri., Kibi International Univ., 2.Hyogo Prefectural Agriculture, Forestry and Fishery Technology Center)

P152 Analysis of DNA demethylase mutants in rice

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P153 Phenotypic observation of indehiscent anther in CMS eggplant and prediction of candidate gene responsible for the phenotype

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P154 Integrating public databases to identify heat stress-related genes for breeding in rice. Meta-analysis of transcriptome data and structural similarity search.

○Yonezawa, S., H. Bono (Grad. Sch. Integ. Sci. Life, Hiroshima Univ.)

P155 Identification of novel stress-responsive genes by meta-analysis of public RNA-Seq data in rice varieties tolerant or susceptible to salt and drought stress

☆Shintani, M., H. Bono (Grad. Sch. Int. Sci., Hiroshima Univ.)

P156 Allele Graph: Overview of Allelic Combinations of Loci for Agricultural Traits

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P157 Cataloging recombination sites between homoeologous chromosomes in *Brassica napus* using Dosage-score analysis

☆Kumazawa, R., M. Hara, K. Miyaki, M. Yoshizumi, T. Segawa, H. Takagi (Ishikawa Prefectural University)

P158 Unveiling the NB-LRR diversity from cultivars of *Brassica rapa* vegetables

Shimizu, M.², ○R. Fujimoto¹ (1.Grad Sch. Agric. Sci., Kobe Univ., 2.IBRC)

P159 Pathotype classification of *Plasmodiophora brassicae* from broccoli field in Japan and varietal difference of resistance to clubroot

○Kawasaki, M., N. Fukino, H. Sakamoto (Institute of Vegetable and Floriculture Science, NARO)

P160 Introduction of resistance genes to brown planthopper into rice variety 'Sagabiyori' and linkage of negative traits.

○Fujita, D., S. Shar, K. Begum (Grad. Sch. Agri., Univ. Saga)

P161 Varietal differences of waterlogging tolerance in wheat at the early stage of growth

☆Onoue, A., H. Kai, Y. Kakitsuka, O. Uchikawa, T. Todoroki, M. Tamura, E. Kakita (Fukuoka Agric. Res. Cent.)

P162 Phosphoproteome analysis between water-saving and non-water-saving wheat

☆Hirata, S.¹, K. Yamashita², T. Umezawa², A. Nieda³, H. Tsujimoto⁴, R. Mega^{1,3} (1.Grad. Sch. Sci. Tech. Innov., Yamaguchi. Univ, 2.Grad. Sch. BASE., Tokyo U. Agr. Tech, 3.Fac. Agr., Yamaguchi Univ, 4.ALRC., Tottori Univ)

P163 Evaluation of root anatomical plasticity in response to phosphate starvation in the chromosome segment substitution lines derived from *O. rufipogon*.

☆Kageyama, M.¹, H. Morishita², T. Takashi³, M. Ashikari⁴, T. Yamauchi⁴ (1.Sch. Agric., Nagoya Univ., 2.Grad. Sch. Bioagr. Sci., Nagoya Univ., 3.STAY GREEN Co., Ltd., 4.Biosci. Biotech. Center, Nagoya. Univ.)

P164 Contribution of pathogen defense mechanisms and HSFA2 in regulaing memory of 5-min heat stress in *Arabidopsis*

☆Shimizu, R., M. Yunose, K. Oyoshi, N. Suzuki (Sophia University Graduate School of Science and Technology)

P165 Integrated analysis of phosphorus acquisition traits and comparison across wheat varieties

○Maruyama, H., T. Imai, N. Aoyama, T. Watanabe, T. Shinao (Gras. Sch. Agri., Hokkaido Univ.)

P166 Screening of QTL contributing to water-saving drought-tolerance using wheat RIL population

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P167 Functional analysis of B3-Raf to root oxygen deficiency in Brassica napus

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P168 Investigation of yields on various environments and photosynthetic activities using Japanese major sweetpotato cultivars

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P169 Effects of mulching on sweet potato yield and processing quality

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P170 Analysis of barley mutant lines with altered grain starch properties

○Nakata, M.¹, R. Matsushima², M. Taira¹, M. Yanaka¹, H. Shimizu¹ (1.KARC, NARO, 2.IPSR, Okayama Univ.)

P171 Characteristics of storage roots in dodecaploid sweet potato and their unstable ploidy

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3.Kushima AoiFarm Co. Ltd., 4.Facul. Agric., Univ. Miyazaki, 5.Res. Inst. Agric. Resour.,
Ishikawa Pref. Univ.)

P172 Seed protein content and *POWR1* gene genotype of Japanese summer type soybeans.

○Komatsu, K.¹, T. Sayama^{1,2}, Y. Takada¹ (1.Western Region Agricultural Research Center, NARO, 2.Present; Tohoku Agricultural Research Center, NARO)

P173 Relationshi between the degree of heterosis and parental genomic differences for several traits under different growth conditions in sugar beet.

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○K. Kitazaki¹ (1.Res. Fac. Agri., Hokkaido Univ., 2.HARC, NARO)

P174 Examination of conditions for isolating nuclei from barley shoot apex for single-nucleus RNA-sequencing

☆Takeda, R.¹, J. Ito¹, Y. Nomura¹, N. Sato¹, A. Hirota², M. Hayashi², H. Hisano³, T. Uchino⁴, S. Nasuda⁴, H. Tsuji^{1,5} (1.KIBR, Yokohama City Univ., 2.CSRS, RIKEN., 3.IPSR, Okayama Univ., 4.Grad. Sch. Agric., Kyoto Univ., 5.Bioscience and Biotechnology Center, Nagoya Univ.)

P175 Genetic analysis of panicle traits using *Oryza rufipogon*

☆Suzuki, R.¹, H. TAKAHASHI², M. NAKAZONO², Y. Sato³, A. Agata² (1.Fac. Agr., Nagoya U., 2.Grad. Sch. Bioagr. Sci., Nagoya. U., 3.National Institute of Genetics.)

P176 Time-series analysis of kinematics of the main culm and tillers in wild rice in micro-gravity condition

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P177 Analysis of PIN localization for elucidation of auxin polar transport in rice embryo

☆Tezuka, T., Y. Sato (Plant Genet., NIG)

P178 Identification of *rsd32* reducing seed dormancy using MutMap in wheat

○Rikiishi, K., E. Tsuchiya, M. Sugimoto (Inst. Plant Sci. Res., Okayama Univ.)

P179 Search for epigenetic mutations involved in the inhibition of *BoFLC1* gene silencing in the non-flowering cabbage mutant 'nfc'

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P180 Suppression of barley flowering by overexpression of rice *DECELERATOR OF INTERNODE ELONGATION 1 (DEC1)* gene

○Ito, J.¹, Y. Nomura¹, K. Nagai², H. Hisano³, M. Kashima⁴, M. Ashikari², H. Tsuji^{1,2} (1.KIBR, Yokohama City Univ., 2.Bioscience and Biotechnology Center, Nagoya Univ., 3.IPSR, Okayama Univ., 4.Toho Univ.)

P181 Epigenetic modification analysis using single-cell resolution 3D immunostaining for rice shoot apical meristem II

☆Morishita, Y.¹, R. Takata², A. Yoshida², A. Higo², H. Tsuji^{2,3} (1.Grad. Sch. Bioagr. Sci., Nagoya Univ., 2.KIBR, Yokohama City Univ., 3.BBC, Nagoya Univ.)

P182 Relationship between bolting phenotype and BvBTC1 haplotype in cultivated beet

☆Oishi, M., R. Hayakawa, E. Taniguchi, K. Kitazaki, T. Kubo (Grad. Sch. Agr., Hokkaido Univ)

P183 Vernalization response characteristics of *FLOWERING LOCUS C 2* derived from cabbage in the Chinese cabbage genetic background.

○Yano, S.¹, A. Chowdhury¹, N. Nishida², R. Fujimoto¹ (1.Graduate School of Agricultural Science, Kobe University, 2.Faculty of Agriculture, Kobe University)

P184 Functional analysis of spinach *FT* and *CO* homologs located in QTLs that control bolting timing.

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P185 Expression analysis of floral development-related genes in *Fragaria iinumae* using RNA-seq.

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P186 Identifying genomic regions in tetraploid wheat involved in unreduced gamete formation by QTL-seq

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P187 Fine mapping of the *HLA1* locus causing hybrid lethality in *Nicotiana* interspecific hybrids

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P188 Basic research on stem tip culture methods for induction of shoot primordia in licorice (*Glycyrrhiza uralensis* L.)

☆Asano, H.¹, T. Murata^{1,2}, Y. Matsuda^{1,2}, Y. Masuda^{1,2} (1.Graduate School of Agriculture, Tokai University, 2.School of Agriculture, Tokai University)

P189 Comparison of callus induction and regeneration conditions from mature seed embryos using an indica rice variety.

○Ohtake, M., A. Komatsu (Institute of Agrobiological Sciences, NARO)

P190 Characterization of a self-compatible mutant in common buckwheat

☆Nakano, A., Y. Mizukami, S. Tadokoro, K. Wada, J. Aii (NUPMLS)

P191 Detection of *BrassicaS* haplotypes by STH chromatographic assay

☆Zhu, X., A. Tian, H. Kitashiba (Grad. Sch. Agr. Sci., U. Tohoku)

P192 Identification and frequency survey of *S* haplotypes in *Raphanus sativus* L. var. *raphanistroides* collected from the Japan Sea coastal area (Shimane to Niigata).

Ji, J.¹, A. Tian¹, K. Yoshida¹, Y. Ito¹, X. Zhu¹, M. Yamashita¹, T. Ishi^{2,3}, S. Miyashita¹, M. Yamamoto¹, ○H. Kitashiba¹ (1.Grad. Sch. Agr. Sci., U. Tohoku, 2.Arid Land Res. Ctr.,

P193 Inheritance of fertility restoration in heterozygotes of the F₁ pollen sterility gene *S21* from *Oryza nivara* and *O. meridionalis*

Kubota, R.¹, ○Y. Yamagata² (1.Bioenviron. Sci., Grad. Sch., Kyushu Univ., 2.Fac. Agr., Grad. Sch., Kyushu Univ.)

P194 Mitochondrial genome editing of the candidate gene responsible for cytoplasmic male sterility in sugar beet.

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P195 Morphological changes in petals and petal cells during opening and closing of *Nelumbo* flowers

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