

# Title of Papers Presented at the 135th Meeting of The JAPANESE SOCIETY OF BREEDING

## Oral Presentations

**101** Metabolite profiling for development of heat stress tolerant lines in wheat

☆Matsunaga, S. <sup>1</sup>, Y. Yamasaki <sup>2</sup>, R. Mega <sup>2</sup>, H. Tsujimoto <sup>2</sup> (1.Graduate School of Sustainability Science, Tottori Univ., 2.Arid Land Research Center, Tottori Univ.)

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**102** Development of the plant genome portal site "PlantGARDEN"

☆Harada, D. <sup>1</sup>, H. Ichihara <sup>2</sup>, A. Nakaya <sup>2</sup>, A. Ghelfi <sup>1</sup>, K. Fujishiro <sup>1</sup>, M. Kohara <sup>1</sup>, H. Hirakawa <sup>1</sup>, S. Tabata <sup>1</sup>, S. Isobe <sup>1</sup> (1.Kazusa DNA Research Institute, 2.Graduate School of Medicine Faculty of Medicine, Osaka University)

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**103** Genetic locus of the green/yellow pod color variation in pea (*Pisum sativum*)

○Shirasawa, K. <sup>1</sup>, K. Sasaki <sup>2,3</sup>, S. Isobe <sup>1</sup> (1.Kazusa DNA Res. Inst., 2.U. Tokyo, 3.Present address: JIRCAS)

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**104** Identification of QTL for main stem internode length with the recombinant inbred lines from the cross between Japanese and modern US soybean varieties

☆Hishinuma, A. <sup>1</sup>, A. Fukuda <sup>2</sup>, T. Sugimoto <sup>3</sup>, O. Uchikawa <sup>4</sup>, S. Morita <sup>4</sup>, R. Okuno <sup>4</sup>, S. Kato <sup>1</sup>, T. Sayama <sup>5</sup>, Y. Yokota <sup>2</sup>, T. Shimizu <sup>2</sup>, F. Taguchi-Shiobara <sup>2</sup>, E. Ogiso-Tanaka <sup>2</sup>, A. Kaga <sup>2</sup>, M. Hajika <sup>2</sup>, M. Ishimoto <sup>2</sup> (1.TARC, NARO, 2.NICS, NARO, 3.Hyogo Pre. Tech. Cent. Agr. Forest. Fish., 4.Fukuoka Agr. Forest Res. Cent., 5.WARC, NARO)

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**105** Identification of a genomic region associated with plant height in foxtail millet (*Setaria italica*) by QTL-seq

☆Yoshitsu, Y. <sup>1</sup>, M. Takakusagi <sup>1</sup>, A. Abe <sup>2</sup>, H. Takagi <sup>2,3</sup>, M. Kobayashi <sup>2</sup>, S. Hasegawa <sup>1</sup>, R. Terauchi <sup>2,4</sup> (1.Iwate Agric. Res. Ctr. Kenpoku Agr. Inst., 2.Iwate Biotechnol. Res. Ctr., 3.Ishikawa Prefectural University, 4.Grad. Sch. Agric., Kyoto Univ.)

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**106** Male sterility in progeny of Satsuma mandarin is determined by the combination of haplotype blocks in *MS-P1*

○Goto, S., S. Ohta, K. Nonaka, H. Hamada, T. Yoshioka, T. Shimizu (Institute of Fruit Tree and Tea Science, NARO)

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**107** Evolution and diversification of a rice herbicide resistance gene, *HIS1*, and its related genes

○Yoshida, H. <sup>1</sup>, K. Murata <sup>2</sup>, F. Li <sup>3</sup>, H. Maeda <sup>4</sup>, Y. Tozawa <sup>5</sup>, A. Yamazaki <sup>6</sup>, K. Sekino <sup>6</sup>, S. Suzuki <sup>6</sup>, A. Komatsu <sup>1</sup>, S. Hirose <sup>1</sup>, M. Kuroki <sup>3</sup> (1.Inst. Agrobiological Sci., NARO, 2.Toyama Pref. Agr. Fores. Fish. Res. Cent., 3.Inst. Crop Sci., NARO, 4.Central Reg. Agric. Res. Ctr., NARO, 5.Saitama Univ., 6.SDS Biotech K.K)

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**108** Exploring a Gene that Affects Pollen Fertility under Salt Stress in Barley

☆Kodama, A. <sup>1</sup>, R. Narita <sup>1</sup>, M. Yamaguchi <sup>1</sup>, H. Hisano <sup>2</sup>, S. Adachi <sup>1</sup>, H. Takagi <sup>3</sup>, T. Hirasawa <sup>1</sup>, K. Sato <sup>2</sup>, T. Ookawa <sup>1</sup> (1.Grad. Sch. Agri., Tokyo Univ. Agri. Tech., 2.IPSR, Okayama Univ., 3.Biores., Ishikawa Pref. Univ.)

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**109** Fine mapping of anaerobic germination-associated QTL, *qCEA1*, that is detected from Lowland NERICAs

☆Kuya, N. <sup>1</sup>, J. Sun <sup>1,2</sup>, K. Iijima <sup>1</sup>, Y. Shi <sup>3</sup>, J. Yonemaru <sup>1</sup>, S. McCouch <sup>3</sup>, R. Venuprasad <sup>4</sup>, T. Yamamoto <sup>1,5</sup> (1.Institute of Crop Science, NARO, 2.Shenyang Agricultural University, 3.Cornell University, 4.Africa Rice Center (AfricaRice), 5.Institute of Plant Science and Resources, Okayama University)

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**110** Genetic segregation of the marker gene in the progenies of the biallelic gene targeting rice plants

☆Ohtsuki, N. <sup>1</sup>, K. Kizawa <sup>2</sup>, S. Toki <sup>1,3</sup> (1.NARO, Inst. of Agro. Sci., 2.Nisshin Flour Milling Inc., 3.Kihara Inst. Biol. Res., Yokohama City Univ.)

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**111** Genetic diversity of the NARO soybean core collection

☆Kajiya-Kanegae, H. <sup>1</sup>, H. Nagasaki <sup>2</sup>, A. Kaga <sup>3</sup>, K. Hirano <sup>4</sup>, E. Ogiso-Tanaka <sup>3</sup>, M. Matsuoka <sup>4</sup>, M. Ishimoto <sup>3</sup>, R. Akashi <sup>5</sup>, S. Isobe <sup>2</sup>, H. Iwata <sup>1</sup> (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.Kazusa DNA Res. Inst., 3.Institute of Crop Science, NARO, 4.Biosci. Biotech. Cent., Nagoya Univ., 5.University of Miyazaki)

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**112** Genome-wide association study in sorghum using the genotype by year model

○Ishimori, M. <sup>1</sup>, H. Takanashi <sup>1</sup>, M. Fujimoto <sup>1</sup>, H. Kajiya-Kanegae <sup>1</sup>, J. Yoneda <sup>2</sup>, T. Tokunaga <sup>2</sup>, N. Tsutsumi <sup>1</sup>, H. Iwata <sup>1</sup> (1.Grad. Sch. Agri. Life Sci., Univ. Tokyo, 2.EARTHNOTE Co., Ltd.)

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**113** Development of an efficient method to remove highly repeated sequence elements from genome and its application in whole genome sequencing of a diploid wheat

☆Ichida, H., T. Abe (RIKEN Nishina Center)

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**114** Principal component analysis and genome-wide association study for plant architecture in rice

☆Yano, K. <sup>1</sup>, K. Hirano <sup>2</sup>, S. Yoshida <sup>3</sup>, H. Kitano <sup>2</sup>, G. Tamiya <sup>1</sup>, M. Matsuoka <sup>2</sup> (1.Riken Ctr. for Advanced Intelligence Project, 2.Bioscience and Biotechnology Ctr., Nagoya Univ., 3.Res. Inst. for food & Agr., Ryukoku Univ.)

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**115** GWAS using eating quality traits in rice

☆Mori, M., K. Hirano, H. Ogawa, M. Kawamura, M. Matsuoka (Bioscience and Biotechnology Ctr., Nagoya Univ)

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**116** Genomic prediction with genotype by environment interaction for panicle structure and grain weight distribution in rice

☆Yabe, S. <sup>1,2</sup>, H. Yoshida <sup>1</sup>, H. Kajiya-Kanegae <sup>3</sup>, E. Yamamoto <sup>2,4</sup>, M. Yamasaki <sup>5</sup>, H. Iwata <sup>3</sup>, K. Ebana <sup>1</sup>, E. Fushimi <sup>1</sup>, H. Maeda <sup>1</sup>, T. Hayashi <sup>1</sup>, H. Nakagawa <sup>1</sup> (1.NARO, 2.PRESTO, JST, 3.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 4.Kazusa DNA Res. Inst., 5.Food Resources Education and Research Ctr., Grad. Sch. Agric. Sci., Kobe Univ.)

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**117** Effect of pyramiding QTL for seedling vigour and semi-dwarf gene to morphological character in rice

○Nakajo, S. <sup>1</sup>, A. Abe <sup>2</sup>, T. Fujioka <sup>1</sup>, R. Terauchi <sup>2</sup> (1.Iwate Agric. Res. Ctr., 2.Iwate Biotech. Res. Ctr.)

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**118** QTL Analysis for Fruit Morphological Traits in Snake melon (*Cucumis melo* L. var. *flexuosus*)

☆Matsuo, H. <sup>1</sup>, K. Shirasawa <sup>2</sup>, S. Ishobe <sup>2</sup>, Y. Yoshioka <sup>3</sup> (1.Grad. Sch. Life & Env. Sci., Univ. Tsukuba, 2.Kazusa DNA Res Inst, 3.Fac. Life Env. Sci., Univ. Tsukuba)

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**119** Construction of pseudomolecules in sub clover genome by using Hi-C

○Isobe, S. <sup>1</sup>, K. Shirasawa <sup>1</sup>, A. Ghelfi <sup>1</sup>, R. Moraga <sup>2</sup>, H. Hirakawa <sup>1</sup>, H. Nagasaki <sup>1</sup>, A. Griffiths <sup>2</sup>, J. Jacobs <sup>2</sup>, K. Ghamkhar <sup>2</sup> (1.Kazusa DNA Research Institute, 2.AgResearch)

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**120** Fine mapping of qGTH3, a gene improved grain thickness in the Tentakaku genetic background

☆Yamaguchi, T. <sup>1</sup>, R. Mizobuchi <sup>2</sup>, F. Taguchi <sup>2</sup>, S. Fukuoka <sup>2</sup>, N. Kitazawa <sup>2</sup>, Y. Iyama <sup>3</sup>, K. Fujita <sup>4</sup>, H. Ikeda <sup>5</sup> (1.Toyama Pref. Agr. For. Fis. Res. Cent., 2.NARO, 3.Takaoka Agr. For. Prom. Cent., 4.Niikawa Agr. For. Prom. Cent., 5.Tonami Agr. For. Prom. Cent.)

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**121** Analysis of barley genome diversity based on GRAS-Di technology

○Saisho, D. <sup>1</sup>, H. Enoki <sup>2</sup>, K. Suzuki <sup>2</sup> (1.IPSR, Okayama Univ., 2.TOYOTA MOTOR CORPORATION)

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**122** Identification of a low potassium tolerant gene from wild species of rice

☆Ohmori, Y., T. Fujiwara (Grad. Sch. Agr. Life Sci., Univ. Tokyo)

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**123** Modeling of adaptive root traits of Poaceae species which correlated with various soil water content

☆Yamauchi, T. <sup>1,2</sup>, M. Nakazono <sup>3</sup>, N. Tsutsumi <sup>2</sup> (1.JST PRESTO, 2.Grad. Sch. Agric. Life Sci., Univ. Tokyo, 3.Grad. Sch. Bioagric. Sci., Nagoya Univ.)

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**201** *Gsc1* determining green color of seed coat was selected to mutant allele in the process of domestication in soybean

☆Kozu, T. <sup>1</sup>, Y. Tokumitsu <sup>1</sup>, H. Yamatani <sup>2</sup>, M. Ishimoto <sup>3</sup>, M. Kusaba <sup>2</sup>, J. Abe <sup>1</sup>, T. Yamada <sup>1</sup> (1.Grad. Sch. Agr., Univ. Hokkaido, 2.Grad. Sch. Sci., Univ. Hiroshima, 3.Institute of Crop Sciences., NARO)

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**202** Functional analysis of orthologs of *Gsc1* determining green color of seed coat in soybean

☆Yamatani, H. <sup>1</sup>, T. Yamada <sup>2</sup>, M. Kusaba <sup>1</sup> (1.Grad. Sch. Sci., Univ. Hiroshima, 2.Res. Fac. Agr., Univ. Hokkaido)

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**203** A new locus on chromosome 14, qCSCD14, associated with the tolerance of cold-induced seed coat discoloration in soybean

☆Sato, Y. <sup>1</sup>, N. Yamaguchi <sup>2</sup>, M. Senda <sup>1</sup> (1.Fac. Agric. Life Sci., Univ. Hirosaki, 2.Tokachi Agr. Exp. Sta., HRO)

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**204** Physiological and biochemical characterization of *LOX-3* soybean mutants generated by genome editing

☆Furukawa, Y., Y. Kanazashi, A. Hirose, J. Abe, T. Yamada (Grad. Sch. Agric., Univ. Hokkaido)

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**205** Identification of GS3 and DEP1 proteins in rice

Nishiyama, A., S. Matsuta, G. Chaya, T. Itoh, K. Miura, ☆Y. Iwasaki (Dept. Biosci. Biotech., Fukui Pref. Univ.)

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**206** Genome-wide identification and characterization of the SQUAMOSA promoter binding transcription factor families in pearl millet

☆Shinde, H. <sup>1</sup>, A. Dudhate <sup>1</sup>, D. Tsugama <sup>1</sup>, S. Liu <sup>2</sup>, T. Takano <sup>1</sup> (1.The University of Tokyo, Asian Natural Environmental Science Center, The Laboratory of Environmental Stress Tolerance, 2.State Key Laboratory of Subtropical Silviculture, Zhejiang A and F University, Hangzhou, 311300, China)

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**207** CRISPR/Cas9-mediated gene targeting in Arabidopsis using sequential transformation

☆Miki, D., W. Zhang, P. Fangnan, W. Zeng, Z. Jian-Kang (Shanghai Center for Plant Stress Biology (PSC), CAS)

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**208** Expression analysis of AtHKT1;1 and effects of AtHKT1;1pro-SvHKT2 expression on salt tolerance of transgenic Arabidopsis

○Tada, Y., T. Kugimiya (Sch. of Biosci. and Biotechnol.)

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**209** Inactivation of a transposable element mPing during modern rice breeding in Japan

○Ikeda, Y. <sup>1</sup>, S. Teramoto <sup>2</sup>, T. Tanisaka <sup>3</sup>, Y. Okumoto <sup>4</sup>, T. Tsukiyama <sup>1</sup> (1.Dep. Agr. Prod. Sci., Kindai Univ., 2.Ints. Crop Sci., NARO, 3.Dep. Agr. Reg. Reclam., Kibi Intl. Univ., 4.Grad. Sch. Agr., Kyoto Univ.)

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**210** Dynamics of transposon expressions in rice embryo and endosperm

☆Nagata, H. <sup>1</sup>, A. Ono <sup>1</sup>, Y. Fukuda <sup>1</sup>, Y. Kishima <sup>2</sup>, K. Yano <sup>3</sup>, T. Kinoshita <sup>1</sup> (1.Kihara. Inst. Biol. Res., Yokohama City U., 2.Grad. Sch. Arg., Hokkaido U., 3.Grad. Sch. Arg., Meiji U.)

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**211** Development of novel genetic transformation system by inducible removal of a visible marker gene

☆Fukuda, M., T. Igawa (Grad. Hort., Chiba Univ.)

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**212** Identification of noncoding RNAs in Chinese cabbage

Nishida, N. <sup>1</sup>, D. Shea <sup>2</sup>, E. Itabashi <sup>3</sup>, A. Akter <sup>1</sup>, N. Miyaji <sup>1</sup>, H. Mehraj <sup>1</sup>, T. Kakizaki <sup>3</sup>, K. Okazaki <sup>2</sup>, ○R. Fujimoto <sup>1</sup> (1.Grad. Sch. Agric. Sci., Kobe Univ, 2.Grad. Sch. Sci. Tech., Niigata Univ, 3.Inst. Veg. & Flor. Sci., NARO)

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**213** PolA1 hairpin RNA-expressing tobacco showed reduced nematode multiplication and improved agronomic characters

☆Chukwurah, P., S. Poku, A. Yokoyama, M. Shishido, I. Nakamura (Graduate School of Horticulture, Chiba University)

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**214** Growth suppression of pine wood nematode using RNA interference targeting of PolA1 gene

☆Watanabe, K. <sup>1</sup>, T. Usami <sup>1</sup>, K. Hukuhara <sup>2</sup>, I. Nakamura <sup>1</sup> (1.Grad. Sc. Hort., Chiba Univ., 2.Chiba Prefectural Agriculture and Forestry Research Center)

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**215** Functional analysis of *OsEMF2a* in rice endosperm development

☆Nishino, M. <sup>1</sup>, K. Tonosaki <sup>1,2</sup>, M. Kunisada <sup>1</sup>, A. Ono <sup>1</sup>, T. Kinoshita <sup>1</sup> (1.KIBR, Yokohama City University, 2.University of California, Davis)

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**216** Effect of heat stress at germination on targeted mutagenesis in barley

○Ogawa, T., S. Toki (Institute of Agrobiological Sciences, NARO (NIAS))

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**217** Genome editing of *Qsd1* and *Qsd2* genes involved in seed dormancy in barley

○Hisano, H. <sup>1</sup>, R. Hoffie <sup>2</sup>, M. Yamane <sup>1</sup>, H. Munemori <sup>1</sup>, J. Kumlehn <sup>2</sup>, K. Sato <sup>1</sup> (1.IPSR, Okayama Univ., 2.Leibniz Institute of Plant Genetics and Crop Plant Research

(IPK))

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**218** The combined effects of mutations induced in *AP2* homoeologs on open and closed flowering in hexaploid wheat

○Kakeda, K., K. Watanabe, H. Haine (Fac. Bioresour., Mie Univ.)

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**219** Plant mitochondrial genome editing using mitoTALEN: Targeted disruption of a mitochondrial gene, *orf79*, in BT type cytoplasmic male sterile rice

○Kazama, T. <sup>1</sup>, Y. Watari <sup>2</sup>, N. Tsutsumi <sup>2</sup>, K. Toriyama <sup>1</sup>, S. Arimura <sup>2,3</sup> (1.Grad. Sch. Agri. Sci., Tohoku Univ., 2.Grad. Sch. Agri. Life Sci., U. Tokyo, 3.PRESTO, JST)

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**220** Mitochondrial genome editing by mitoTALEN: targeted gene disruption of cytoplasmic male sterility-associated gene *orf125* in rapeseed

☆Tsuruta, Y. <sup>1</sup>, H. Sugaya <sup>1</sup>, S. Yanase <sup>1</sup>, Y. Watari <sup>1</sup>, T. Kazama <sup>2</sup>, C. Koizuka <sup>3</sup>, N. Tsutsumi <sup>1</sup>, N. Koizuka <sup>3</sup>, S. Arimura <sup>1</sup> (1.Grad. Sch. Agri., Univ. Tokyo, 2.Grad. Sch. Agri. Sci., Tohoku Univ., 3.Col. Agri., Tamagawa Univ.)

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**221** Mitochondrial genome editing by mitoTALEN: Gene disruption of *ATP6* gene in *Arabidopsis* and technical modifications of mitoTALEN

☆Sugaya, H., Y. Tsuruta, S. Yanase, Y. Watari, N. Tsutsumi, S. Arimura (Grad. Sci. Agri., Univ. Tokyo)

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**222** Simultaneous knockout of CmDMC1 genes via TALENs-mediated genome editing generates male and female sterile chrysanthemums

☆Shinoyama, H. <sup>1</sup>, H. Ichikawa <sup>2</sup>, A. Nishizawa-Yokoi <sup>2,3</sup>, M. Skaptsov <sup>4</sup>, S. Toki <sup>2,5,6</sup> (1.Fukui Agr. Exp. Stn., 2.NIAS, NARO, 3.JST, PRESTO, 4.Altai Sta. Univ., 5.Grad. Sch. Nanobio., YCU, 6.Kihara Inst., YCU)

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**223** Analysis of *Agrobacterium*-mediated transformation frequency in DNA polymerase theta-deficient rice and *Arabidopsis*

○Saika, H. <sup>1</sup>, A. Yokoi <sup>1,2</sup>, N. Hara <sup>1</sup>, L. Lee <sup>3</sup>, S. Toki <sup>1,4</sup>, S. Gelvin <sup>3</sup> (1.Institute of Agrobiological Sciences, NARO, 2.JST, PRESTO, 3.Purdue Univ., 4.KIBR, Yokohama City Univ.)

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**301** A new crossing method using the male sterile line and honeybees (*Apis mellifera*) in soybean

○Yamaguchi, N. (Tokachi Agricultural Experiment Station, HRO)

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**302** Breeding of a new adzuki bean variety 'Murasakisayaka' with high adaptability of combine harvest and purple colored bean paste

○Nagaoka, H. <sup>1,2</sup>, Y. Nagaoka <sup>2</sup>, S. Yamada <sup>3</sup>, T. Ogawa <sup>3</sup> (1.Obihiro Univ. Agr. & Vet. Med., 2.Biotech Co., Ltd., 3.Gozasoro Co., Ltd.)

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**303** Alteration of anthocyanin composition in the storage roots of sweetpotato by DNA marker assisted selection of recessive *F3'H* homozygotes

○Tanaka, M., Y. Takahata, T. Sakai (KARC, NARO)

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**304** Efficient gene pyramiding in the 'Akidawara' background using simplified Biotoron Breeding System (sBBS) in rice

○Tanaka, J. <sup>1</sup>, S. Fukuoka <sup>1</sup>, M. Kuroki <sup>1</sup>, T. Yamamoto <sup>1,2</sup> (1.NICS/NARO, 2.IPSR/Okayama Univ.)

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**305** QTL analysis and GWAS of agronomic traits in sweetpotato (*Ipomoea batatas*) using genome wide SNPs

☆Haque, E. <sup>1</sup>, H. Tabuchi <sup>1</sup>, Y. Monden <sup>2</sup>, K. Suematsu <sup>1</sup>, K. Shirasawa <sup>3</sup>, S. Isobe <sup>3</sup>, M. Tanaka <sup>1</sup> (1.Kyushu Okinawa Agricultural Research Center, NARO, 2.Okayama Univ., 3.Kazusa DNA Res. Inst.)

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**306** Evaluation of traits related to canopy structure in soybean mini-core collection using UAV

○Kaga, A. <sup>1</sup>, W. Guo <sup>2</sup>, S. Kurokawa <sup>3</sup>, K. Fujii <sup>1</sup>, D. Sekine <sup>1</sup>, M. Tsuda <sup>4</sup>, A. Fukuda <sup>1</sup>, H. Iwata <sup>2</sup> (1.NICS, NARO, 2.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 3.CARC, NARO, 4.T-PIRC, Univ. Tsukuba)

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**307** Dynamic changes of both phenotype and genotype in the process of individual selection in rice breeding

○Yonemaru, J., H. Tsunematsu, S. Fukuoka, T. Ishii (NARO Institute of Crop Science)

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**308** Multispectral imaging to evaluate drought response in soybean

☆Sasaki, G. <sup>1</sup>, Y. Toda <sup>1</sup>, Y. Omori <sup>1</sup>, Y. Yamasaki <sup>2</sup>, H. Takahashi <sup>3</sup>, H. Takanashi <sup>1</sup>, M. Tsuda <sup>4</sup>, H. Kajiya-Kanegae <sup>1</sup>, H. Tsujimoto <sup>2</sup>, A. Kaga <sup>5</sup>, M. Nakazono <sup>3</sup>, T. Fujiwara <sup>1</sup>, H.



Iwata <sup>1</sup> (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.Arid Land Res. Ctr., Tottori Univ., 3.Grad. Sch. Bioagri. Sci.,Nagoya Univ., 4.T-PIRC, Univ. Tsukuba, 5.NICS)

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**309** On technical limitations and possibilities of genotyping cost reduction by miniaturized technology and reducing the number of reaction steps

☆Ogiso-Tanaka, E., T. Yamada, Y. Nanjyo, A. Kaga, M. Hajika (National Agriculture and Food Research Organization Institute of Crop Science (NICS, NARO))

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**310** Time-series observation of growth process of soybean with UAV remote sensing and its application to genomic prediction

☆Toda, Y. <sup>1</sup>, G. Sasaki <sup>1</sup>, Y. Omori <sup>1</sup>, Y. Yamasaki <sup>2</sup>, H. Takahashi <sup>3</sup>, H. Takanashi <sup>1</sup>, M. Tsuda <sup>4</sup>, H. Kajiya-Kanegae <sup>1</sup>, H. Tsujimoto <sup>2</sup>, A. Kaga <sup>5</sup>, M. Nakazono <sup>3</sup>, T. Fujiwara <sup>1</sup>, H. Iwata <sup>1</sup> (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.Arid Land Res. Ctr., Tottori Univ., 3.Grad. Sch. Bioagri. Sci., Nagoya Univ., 4.T-PIRC, Univ. Tsukuba, 5.NICS)

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**311** Monitoring tiller angle of rice by drone

○Tsunematsu, H. <sup>1</sup>, D. Ogawa <sup>1</sup>, T. Sakamoto <sup>2</sup>, Y. Nonoue <sup>1</sup>, N. Kanno <sup>1</sup>, T. Yamamoto <sup>1</sup>, J. Yonemaru <sup>1</sup> (1.NISC/NARO, 2.NIAES/NARO)

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**312** Our trial to predict shoot biomass of rice MAGIC population using an unmanned aerial vehicle

☆Ogawa, D. <sup>1</sup>, H. Tsunematsu <sup>1</sup>, T. Sakamoto <sup>2</sup>, Y. Nonoue <sup>1</sup>, N. Kanno <sup>1</sup>, J. Yonemaru <sup>1</sup> (1.NICS, NARO, 2.NIAES, NARO)

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**313** How to use nationwide historical data for genomic selection: a study in soybean

○Onogi, A. <sup>1,2,3</sup>, D. Sekine <sup>4</sup>, A. Kaga <sup>1</sup>, S. Ninomiya <sup>5</sup> (1.NICS, 2.RCAIT, NARO, 3.JST PRESTO, 4.NIVFS, 5.Grad. Sch. Agr. Life Sci., Univ. Tokyo)

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**314** Optimizing genomic prediction for costs and accuracy over phenotyping in early growth stages

☆Hamazaki, K., H. Iwata (Grad. Sch. Agr. Life Sci., Univ. Tokyo)

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**315** Development of measuring method for plant organs by using 2D images and 3D models

Hayashi, A., K. Kodama, S. Isobe, ○T. Tanabata (Kazusa DNA Research Institute)

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**316** Development of high throughput DNA marker assisted selection system for soybean breeding

☆Oki, N. <sup>1</sup>, M. Takahashi <sup>1</sup>, A. Kaga <sup>2</sup> (1.NARO, KARC, 2.NARO, NICS)

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**317** Evaluation of natural variation in grain texture of *Aegilops tauschii* using synthetic hexaploid wheat

☆Miki, Y. <sup>1</sup>, M. Okada <sup>1</sup>, K. Yoshida <sup>1</sup>, T. Ikeda <sup>2</sup>, S. Takumi <sup>1</sup> (1.Grad. Sch. Agr. Sci., Kobe U., 2.NARO West. Reg. Agr. Res. Cent.)

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**318** Mutation of a eukaryotic translation-initiation factor gene in *Nicotiana tabacum* L. reduces susceptibility to a resistance-breaking strain of *Potato Virus Y*

○Takakura, Y., H. Udagawa, A. Shinjo, K. Koga (Leaf Tob. Res. Ctr., JT)

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**319** Identification of eukaryotic translation-initiation factor genes conferring reduced susceptibility to Tobacco bushy top virus in *Nicotiana tabacum* L.

○Udagawa, H. <sup>1,2</sup>, A. Shinjo <sup>1</sup>, K. Koga <sup>1</sup>, H. Kitashiba <sup>2</sup>, Y. Takakura <sup>1</sup> (1.Leaf Tob. Res. Ctr., JT, 2.Grad. Sch. Agri. Sci., Univ. Tohoku)

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**320** Resistance of rice cultivar PI231129 to rice bacterial blight. II. Contribution of resistance gene *Xa11*

○Taura, S. <sup>1</sup>, Y. Kawaguchi <sup>2</sup>, K. Ichitani <sup>2</sup> (1.Div. Gene Res., Kagoshima U., 2.Fac. Agri., Kagoshima U.)

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**321** Accumulation of four resistance alleles contributes high level of resistance to green rice leafhopper derived from an accession of *Oryza longistaminata*

☆Thein, H., Y. Yamagata, T. Mai, H. Yasui (Fac. Agr., Grad. Sch., Kyushu Univ.)

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**322** Genome wide analysis of yield related traits of rice grown at low-phosphorus paddy field

☆Hashimoto, Y. <sup>1</sup>, M. Yamasaki <sup>2</sup>, A. Shimizu <sup>3</sup> (1.Grad. Sch. Environ. Sci., Univ. Shiga Pref., 2.Food Resources Education and Res. Ctr., Grad. Sch. Agric. Sci., Kobe Univ., 3.Environ. Sci., Univ. Shiga Pref.)

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**323** Varietal Difference of Low Temperature Response in Anthers of Rice in Booting Stage

☆Yamamori, K. <sup>1</sup>, K. Ogasawara <sup>1</sup>, S. Ishiguro <sup>1</sup>, S. Kikuti <sup>1</sup>, Y. Koide <sup>1</sup>, K. Fujino <sup>1</sup>, Y. Sato <sup>2</sup>, Y. Kishima <sup>1</sup> (1.Grad. Sch. Agr., Univ. Hokkaido, 2.NARO-HARC)

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**401** "Jouiku 471", A New Rice Variety with vigorous growth during the seedling stage under Low-Temperature condition

○Hirayama, Y. <sup>1</sup>, H. Kiuchi <sup>1</sup>, T. Nishimura <sup>2</sup>, K. Doman <sup>1</sup>, T. Maekawa <sup>1</sup>, H. Sato <sup>2</sup>, T. Sato <sup>3</sup>, Y. Numao <sup>4</sup>, H. Shinada <sup>5</sup>, T. Yoshimura <sup>2</sup>, M. Kasuya <sup>5</sup>, H. Ozaki <sup>3</sup>, M. Kinoshita <sup>2</sup>, A. Sugawara <sup>6</sup>, T. Sonoda <sup>5</sup>, R. Ogura <sup>5</sup>, K. Hayashi <sup>5</sup>, T. Abe <sup>2</sup>, N. Iwata <sup>7</sup>  
(1.Kamikawa Agri. Exp. Stn., 2.Central Agri. Exp. Stn., 3.Donan Agri. Exp. Stn., 4.Sapporo Hokkaido, 5.Kitami Agri. Exp. Stn., 6.Tokachi Agri. Exp. Stn., 7.HOKUREN Agric. Res. Inst.)

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**402** Genotyping of genes for grain quality in the early-heading "Haruyokoi" produced by the recurrent backcrossing with early-type synthetic bread wheat

☆Mitta, S. <sup>1</sup>, S. Takumi <sup>2</sup>, K. Murai <sup>1</sup> (1.Fac. Biosci. Biotech., Fukui Pref. Univ., 2.Grad. Sch. Agr. Sci., Kobe Univ.)

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**403** Breeding and characterization of brewing rice variety "Hyakuden"

○Takahashi, R. <sup>1</sup>, S. Shibata <sup>1</sup>, T. Ohno <sup>2</sup>, M. Kodama <sup>2</sup>, K. Kato <sup>1</sup>, T. Kawamoto <sup>1</sup>  
(1.Akita Pref. Agr. Exp. Sta., 2.Akita Res. Inst. Food Brew.)

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**404** Characteristics of Taste of New Rice Cultivar "Yukiwakamaru"

☆Goto, H. <sup>1</sup>, Y. Abe <sup>2</sup>, A. Matsuda <sup>3</sup>, N. Asanome <sup>2</sup>, K. Suzuki <sup>4</sup>, Y. Nitta <sup>5</sup>, M. Chuba <sup>1</sup>  
(1.Yamagata Integrated Agr. Res. Cent., 2.Agriculture, Forestry and Fisheries Department, Yamagata Prefectural Government, 3.Rice Breeding and Crop Sci. Exp. Stn., Yamagata Integrated Agr. Res. Cent., 4.Institute of Crop Science, NARO, 5.Fukushima Univ.)

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**405** A new rice cultivar for Sake brewing "Sakahomare"

☆Nakaoka, F. <sup>1</sup>, A. Kobayashi <sup>1</sup>, T. Hayashi <sup>1</sup>, A. Yoshinaga <sup>2</sup>, M. Okuda <sup>3</sup>, Y. Machida <sup>1</sup>, Y. Morozumi <sup>1</sup>, M. Tanoi <sup>1</sup>, K. Sakai <sup>1</sup>, K. Watanabe <sup>1</sup>, K. Tomita <sup>1</sup> (1.Fukui Agri. Exp. Stn, 2.Fukui pref. food proces. res. inst., 3.NRIB)

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**406** Creation for higher nutrient use efficiency using new wheat genomic resources

☆Yamasaki, Y. <sup>1</sup>, Y. Gorafi <sup>1</sup>, I. Tahir <sup>2</sup>, H. Tsujimoto <sup>1</sup> (1.Tottori University Arid Land Research Center, 2.Agricultural Research Corporation, Sudan)

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**407** Diversity and phylogenetic analysis of China grass (*Boehmeria nivea*) and its related Urticaceae species based on sequencing of chloroplast intergenic region

☆Nishida, Y. <sup>1</sup>, H. Kanke <sup>2</sup>, Y. Funaki <sup>3</sup>, H. Murakami <sup>4</sup>, R. Takahashi <sup>5</sup>, J. Matsuda <sup>6</sup>, T. Sasanuma <sup>1</sup> (1.Grad. Sch. Agr., Yamagata Univ., 2.Research Society of Aizugaku, 3.Karamushi Production Technology Conserving Association, 4.Aoso Revival Dreaming Corps, 5.Oe Town Revitalization Cooperation Corps, 6.Board of Education, Oe Town)

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**408** Genetic diversity analysis on *Psy* and *Ccs* genes that are involved in carotenoid synthesis pathway in *Capsicum chinense* genetic resources using DNA markers

Tsurumaki, K. <sup>1</sup>, Y. Inaba <sup>2</sup>, S. Chiba <sup>2</sup>, ○T. Sasanuma <sup>1,2</sup> (1.United Grad. Sch. Agr. Sci., Iwate Univ., 2.Fac. Agr., Yamagata Univ.)

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**409** Chloroplast DNA polymorphisms and glucosinolate profiles in Japanese *Eutrema* species

☆Haga, N. <sup>1</sup>, F. Baba <sup>2</sup>, S. Hisamatsu <sup>2</sup>, S. Takashima <sup>3</sup>, K. Yamane <sup>1</sup> (1.Fac. Appl. Biol. Sci., Gifu U., 2.Shizuoka Pref. Res. Inst. Agr. Forest. Izu Agr. Res. Cent., 3.Life Sci. Res. Ctr., Gifu U.)

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**410** Comparison of the pungent components in wild and cultivated wasabi

○Yamane, K. <sup>1</sup>, T. Kato <sup>2</sup>, K. Ishida <sup>2</sup>, N. Haga <sup>1</sup>, I. Okunishi <sup>2</sup>, K. Kobayashi <sup>1</sup> (1.Fac. Appl. Biol. Sci., Gifu U., 2.Kinjirushi Inc.)

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**411** Development of genetic engineering technology in *Sorghum bicolor* for utilizing plant biomass

○Izawa, K. <sup>1</sup>, K. Tokue <sup>2</sup>, S. Sakamoto <sup>3</sup>, M. Nakata <sup>3</sup>, N. Mitsuda <sup>3</sup>, H. Ezura <sup>4</sup> (1.Bioscience, Tokyo Univ. Agri., 2.Grad. Life Environ. Sci., Univ. Tsukuba, 3.Bioproduction Res., AIST, 4.Fac. Life Environ. Sci. & T-PIRC, Univ. Tsukuba)

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**412** Analysis of phenotype and gene expression associated with heterosis during early growth in sugar beet

☆Kitazaki, K., M. Ohkubo, T. Kubo (Res. Fac. Agriculture. Hokkaido Univ.)

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**413** Loss of two branching enzymes (BE) affect fertility in rice

☆Miura, S., N. Kouyama, N. Crofts, Y. Hosaka, M. Abe, N. Fujita (Facult. Biores., Akita Pref. Univ.)

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**414** Practical use of high resistant starch rice line. Agricultural characteristics and structure of starch

○Kawamoto, T. <sup>1</sup>, K. Kato <sup>1</sup>, R. Takahashi <sup>1</sup>, R. Takahashi <sup>1</sup>, Y. Hosaka <sup>2</sup>, M. Abe <sup>2</sup>, N. Crofts <sup>2</sup>, S. Miura <sup>2</sup>, N. Oitome <sup>2</sup>, N. Fujita <sup>2</sup> (1.Akita Prefectural Agricultural Experiment Station, 2.Akita Prefectural University)

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**415** Characterization of high resistant starch rice lines with different starch structure

Kikuchi, K. <sup>1</sup>, S. Miura <sup>1</sup>, N. Crofts <sup>1</sup>, Y. Hosaka <sup>1</sup>, M. Abe <sup>1</sup>, T. Kawamoto <sup>2</sup>, K. Kato <sup>2</sup>, R. Takahashi <sup>2</sup>, R. Takahashi <sup>2</sup>, ○N. Fujita <sup>1</sup> (1.Facilt Biores. Sci., Akita Pref.I Univ., 2.Akita Pref.I Agric. Exp. Station)

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**416** Neighboring effects of the genotype of CSSL population on the coverage ratio of a rice cultivar Nipponbare

☆Shoda, M., M. Miyajima, T. Yoshikawa, M. Teraishi, Y. Okumoto (Grad. Sch. Agriculture, Univ. Kyoto)

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**417** Evaluation of genetic diversity in radish based on 6 traits characterizing the root shape using image analysis

☆Dan, Y. <sup>1</sup>, S. Dan <sup>2</sup>, Y. Yoshida <sup>3</sup> (1.Grad. Agr., Univ. Kobe, 2.Fac. Inf., Osaka Gakuin Univ., 3.Food Resources Education and Research Center, Grad. Sch. Agr. Sci., Kobe Univ.)

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**418** Effective use of NGS sequence data from the NARO gene bank rice resources

○Shenton, M. <sup>1</sup>, N. Tanaka <sup>1</sup>, K. Sugimoto <sup>1</sup>, K. Ebana <sup>2</sup>, M. Ishimoto <sup>1</sup> (1.Institute of Crop Science, NARO, 2.Genetic Resources Center, NARO)

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**419** Frequency diversity of non-dormant individuals among wild diploid wheat populations in southern Turkey

○Ohta, S. <sup>1</sup>, N. Mori <sup>2</sup>, H. Ozkan <sup>3</sup> (1.Fac. Biosci. Biotech., Fukui Pref. Univ., 2.Grad. Sch. Agric. Sci., Kobe Univ., 3.Fac. Agric., Cukurova Univ., Turkey)

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**420** Evolutionary and domestication history from a view of chloroplast genome

☆Lam, D. <sup>1,2</sup>, L. Tang <sup>3</sup>, H. Yamagishi <sup>4</sup>, T. Kataoka <sup>5</sup>, R. Ishikawa <sup>4</sup> (1.UGAS, Iwate Univ., 2.Inst. Agri. Sci. South. Vtn, 3.CAAS, 4.Fac. Agr. And Life Sci. Hirosaki Univ., 5.Fac. Hum. And Soc. Sci. Hirosaki. Univ.)

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**421** Genetic diversity and relationships in melon genetic resources from Kazakhstan revealed by the analysis of molecular markers

Murakami, R. <sup>1</sup>, ○K. Tanaka <sup>1</sup>, M. Sugiyama <sup>2</sup>, A. Artemyeva <sup>3</sup>, Z. Mamyrbelov <sup>4</sup>, T. Sergevich <sup>5</sup>, S. Alexanian <sup>3</sup>, K. Kato <sup>6</sup> (1.Fac. Agric. Life Sci., Hirosaki U., 2.NIVFS, 3.VIR, 4.Kazakh Res. Inst. Potato Veg. Growing, 5.Kazakh Sci. Res. Inst. Rice Growing, 6.Grad. Sch. Environ. Life Sci., Okayama U.)

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**422** Occurrence of natural interspecific hybridization in Australian wild rice

Sugawara, K. <sup>1</sup>, T. Mishimaki <sup>1</sup>, K. Monda <sup>2</sup>, K. Ichitani <sup>2</sup>, ○R. Ishikawa <sup>1</sup> (1.Fac. Agr. And Life Sci. Hirosaki Univ., 2.Fac. Agr. Kagoshima Univ.)

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**423** Distribution of the genes causing F1 chlorosis in wild rice lines

○Ichitani, K. <sup>1</sup>, R. Hoki <sup>1</sup>, M. Ichikawa <sup>1</sup>, S. Taura <sup>2</sup>, T. Kuboyama <sup>3</sup>, R. Ishikawa <sup>4</sup> (1.Fac. Agr., Kagoshima Univ., 2.Inst. Gene Res., Kagoshima Univ., 3.Col. Agr., Ibaraki Univ., 4.Fac. Agri. and Life Sci., Hirosaki Univ.)

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**501** Exploration of partial male sterility restoration mechanism in *Brassica napus* which is introduced the alien organelle genome derived from *Diplotaxis eruroides*

☆Fujita, Y. <sup>1,2</sup>, S. Shim <sup>1</sup>, T. Ohnishi <sup>1,3</sup>, S. Bang <sup>1</sup> (1.Sch. Agr., Utsunomiya Univ., 2.United Grad. Sch. Agr., Tokyo Univ. Agr. Tec., 3.PREST, JST)

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**502** An esterase regulating pollen wall structure

○Tsugama, D. <sup>1,2</sup>, T. Takano <sup>2</sup>, K. Fujino <sup>1</sup> (1.Grad. Sch. Agri., Hokkaido Univ., 2.ANESC., Univ. Tokyo)

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**503** Construction of transgenic *A. thaliana* expressing *B. rapa* self-recognition specificity

○Yamamoto, M., H. Kitashiba, T. Nishio (Graduate School of Agricultural Science, Tohoku University)

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**504** Phenotypic variation in synthetic allohexaploid lines derived from crossing between tetraploid wheat and wild einkorn wheat

☆Michikawa, A. <sup>1</sup>, K. Yoshida <sup>1</sup>, K. Nagaki <sup>2</sup>, T. Ikeda <sup>3</sup>, S. Takumi <sup>1</sup> (1.Grad. Sch. Agr. Sci., Kobe U., 2.IPSR, Okayama U., 3.NARO West. Reg. Agr. Res. Cent.)

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**505** Genetic analysis of the grass-clump dwarf-causal gene in wheat relative *Aegilops umbellulata* revealed in interspecific hybrids with tetraploid wheat

☆Okada, M. <sup>1</sup>, K. Yoshida <sup>1</sup>, K. Sato <sup>2</sup>, S. Takumi <sup>1</sup> (1.Grad. Sch. Agr. Sci., Kobe U., 2.IPSR, Okayama U.)

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**506** Juvenile-to-adult phase transition in Sorghum

☆Hashimoto, S., T. Tezuka, S. Yokoi (Grad. Sch. Life Environ. Sci., Osaka Pref. Univ.)

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**507** Improving grain yield by unleashing floret fertility in wheat

☆Sakuma, S. <sup>1,2</sup>, G. Guy <sup>3</sup>, G. Zifeng <sup>2</sup>, T. Ogawa <sup>4</sup>, A. Tagiri <sup>4</sup>, K. Sugimoto <sup>4</sup>, S. Ohnishi <sup>5</sup>, H. Jinno <sup>5</sup>, Y. Yamashita <sup>6</sup>, P. Zvi <sup>3</sup>, S. Thorsten <sup>2</sup>, T. Komatsuda <sup>4</sup> (1.Tottori University, 2.Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), 3.Hebrew University of Jerusalem, 4.NARO, 5.Kitami Agricultural Experiment Station, 6.Central Agricultural Experiment Station)

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**508** Changes in the expression pattern of flowering-time genes located on A or B genome in synthetic hexaploid wheat having different D genome

○Murai, K. <sup>1</sup>, Y. Mizuuchi <sup>1</sup>, T. Ohyama <sup>1</sup>, Y. Yamakage <sup>1</sup>, Y. Fujiwara <sup>1</sup>, S. Takumi <sup>2</sup> (1.Dep. Biosci., Fukui Pref. Univ., 2.Grad. Sch. Agr. Sci., Kobe Univ.)

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**509** Identification of late-heading mutant, *late-heading 2- 5* (*lh2- 5*) in diploid einkorn wheat *Triticum monococcum* strain DV92

☆Ueda, J. <sup>1</sup>, Y. Kazama <sup>2</sup>, T. Abe <sup>2</sup>, K. Murai <sup>1</sup> (1.Fac. Biosci, Biotech., Fukui Pref. U., 2.RIKEN, Nishina Cent.)

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**510** Alien cytoplasm represses the expression of flowering promoter *VRN1* in the alloplasmic wheat line having *Aegilops mutica* cytoplasm

☆Matsumura, M., K. Murai (Dep. Biosci., Fukui Pref. Univ.)

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**511** Functional analysis of BELL1-like homeobox genes, *RI* and *RIL1*, that regulate inflorescence architecture

Ikeda, T. <sup>1</sup>, W. Tanaka <sup>1</sup>, T. Toriba <sup>1,7</sup>, C. Suzuki <sup>1</sup>, A. Maeno <sup>2</sup>, K. Tsuda <sup>2</sup>, T. Shiroishi <sup>2</sup>, T. Kurata <sup>3</sup>, T. Sakamoto <sup>4</sup>, M. Murai <sup>5</sup>, H. Matsusaka <sup>6</sup>, T. Kumamaru <sup>6</sup>, H. Hirano <sup>1</sup> (1.Sch. Sci., Univ. Tokyo, 2.Natl. Inst. Genet., 3.EditForce Inc., 4.Fac. Life. Sci., 5.Kochi Univ., Fac. Agric., 6.Grad. Sch. Agric., Kyushu Univ., 7.Tohoku Univ., Grad. Sch. Life Sci.)

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**512** Regulatory mechanism of stem cell maintenance during axillary bud formation in rice

☆Tanaka, W., H. Hirano (Grad. Sch. Sci., Univ. Tokyo)

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**513** Developmental genetic study of a rice mutant, which shows morphological abnormality in leaves at later growth stages

☆Matsumoto, H. <sup>1</sup>, Y. Yasui <sup>1</sup>, T. Ishikawa <sup>2</sup>, Y. Suzuki <sup>2</sup>, H. Hirano <sup>1</sup> (1.Grad. Sch. Sci., Univ. Tokyo, 2.NARO)

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**514** Morphological and molecular characterization of rice mutant showing aberrant leaf polarity

☆Tezuka, T. <sup>1</sup>, T. Kobayashi <sup>1</sup>, T. Watanabe <sup>1</sup>, R. Satoh <sup>2</sup>, H. Wabiko <sup>1</sup>, N. Nagasawa <sup>1</sup>, N. Satoh-Nagasawa <sup>1</sup> (1.Akita Pref. Univ., 2.Grad. Sch. Biores. Sci. Akita Pref. Univ.)

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**515** Effect of a novel earliness QTL in 2H chromosome on expression pattern of flowering-related genes in barley

○Nishida, H. <sup>1</sup>, T. Iwamoto <sup>2</sup>, S. Yokota <sup>1</sup>, E. Aoki <sup>3</sup>, K. Kato <sup>1</sup> (1.Grad. Sch. Environ. Life Sci., Okayama U., 2.Fac. Agr., Okayama U., 3.NICS)

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**516** Genetic analysis of eco-type related photoperiod response in common buckwheat

☆Takeshima, R., E. Ogiso-Tanaka, K. Matsui (Inst. Crop Sci., NARO)

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**517** Expression analysis of Tartary-buckwheat pericarp using Next Generation Sequencer

☆Fukuie, Y. <sup>1</sup>, D. Tsugama <sup>2,3</sup>, H. Shimoyama <sup>4</sup>, T. Morishita <sup>5</sup>, K. Fujino <sup>2</sup> (1.School of Agriculture, Hokkaido University, 2.Research Faculty of Agriculture, Hokkaido University, 3.ANESC., Tokyo University, 4.Graduate School of Asian and African Area Studies, Kyoto University, 5.Institute of Crop Science, NARO)

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**518** Transcriptome analysis of seed-like tissue accumulates pure sucrose in rice (*Oryza sativa* L. Japonica nipponbare) novel mutant

☆Kurokawa, S. <sup>1</sup>, R. Kasahara <sup>2</sup>, Y. Honma <sup>1</sup> (1.Kitami Institute of Technology, 2.Fujian Agriculture and Forestry University)

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**519** Canceled

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**520** Analysis of GE gene function in the process of shoot regeneration in rice

☆Hatta, T. <sup>1</sup>, I. Mizuno <sup>1</sup>, K. Hibara <sup>2</sup>, J. Itoh <sup>1</sup> (1.Grad. Sch. Agr. & Life Sci., U. Tokyo, 2.Dep. Agri. Region. Reclama., Kibi Int. Univ.)

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**521** Which leaf synthesizes florigen that induces floral transition?

☆Yoshida, A., A. Yoshida, H. Tsuji (Kihara Inst. Biol. Res., Yokohama City Univ.)

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**522** Super-resolution imaging of Florigen

☆Ishii, J., H. Tsuji (Kihara Inst. Biol. Res., Yokohama City Univ.)

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**523** Imaging and functional analysis of cytokinin signaling of the shoot apical meristem in rice on flowering

☆Sato, M. <sup>1</sup>, H. Kitano <sup>2</sup>, H. Tsuji <sup>1</sup> (1.Kihara Inst. Biol. Res., Yokohama City Univ., 2.Biosci. Biotech. Ctr., Nagoya Univ.)

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## Poster presentations

**P001** Torenia transformation system via whisker-supersonic (WSS) method

☆Oda, K. <sup>1</sup>, M. Minami-Ohtsubo <sup>1</sup>, T. Yano <sup>2</sup>, T. Terakawa <sup>2</sup>, N. Ohtsubo <sup>1</sup> (1.Grad. Sch. Life Environ. Sci., Kyoto Pref. Univ., 2.Inplanta Innovations Co., Ltd.)

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**P002** Selection by canopy temperature (CT) in early generations improves potential yield at winter wheat

○Ohnishi, S., M. Kasuya, T. Sonoda, K. Morita, H. Jinno (Hokkaido Research Organization Kitami AES)

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**P003** Rapid 3D visualization of rice roots with X-ray Computed Tomography (CT)

☆Teramoto, S., S. Takayasu, Y. Uga (Institute of Crop Sciences, National Agriculture and Food Research Organization)

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**P004** Quantitative evaluation of shape and color of broccoli by image analysis

☆Sakamoto, L. <sup>1,2</sup>, S. Haga <sup>3</sup>, H. Iwata <sup>1</sup> (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.JSPS Research Fellow, 3.Takii & Company Limited)

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**P005** Image and genomic analysis of morphological variation in edible part of nuts in Pecan germplasm collection

☆Chijiya, R. <sup>1</sup>, L. Sakamoto <sup>1</sup>, M. Ishimori <sup>1</sup>, H. Takanashi <sup>1</sup>, K. Cervantes <sup>2</sup>, A. Nagano <sup>3</sup>, H. Kanegae <sup>1</sup>, L. Grauke <sup>4</sup>, N. Tsutsumi <sup>1</sup>, J. Randall <sup>2</sup>, H. Iwata <sup>1</sup> (1.Grad. Sch. Agri. Life Sci., Univ. Tokyo, 2.New Mexico State University, Las Cruces, NM, 3.Ryukoku University, Kyoto, Japan, 4.USDA ARS Pecan Breeding & Genetics, Somerville, TX)

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**P006** Evaluation of wheat growth with image analysis using digital cameras

☆Kato, S. <sup>1</sup>, T. Tameshige <sup>2</sup>, K. Shimizu <sup>2,3</sup>, H. Tsuji <sup>2</sup>, T. Ban <sup>2</sup> (1.Dep. Sci., YCU, 2.Kihara Institute for Biological Research, YCU, 3.Univ. Zurich)

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**P007** Quantifying phloroglucinol-HCl lignin staining patterns of soybean stem sections

☆Sato, K. <sup>1</sup>, A. Kaga <sup>2</sup>, H. Takanashi <sup>1</sup>, H. Iwata <sup>1</sup> (1.Grad. Sch. Agr. Life Sci., Univ. Tokyo, 2.NICS)

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**P008** Comparison of indices for accuracy evaluation of genomic selection: a simulation study

☆Ono, K. <sup>1</sup>, R. Tanaka <sup>2</sup>, K. Hamazaki <sup>2</sup>, H. Iwata <sup>2</sup> (1.Fac. Agr., Univ. Tokyo, 2.Grad. Sch. Agr. Life Sci., Univ. Tokyo)

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**P009** Evaluation of nutrient component in tomato fruit with highly GABA content via genome editing technique

☆Nonaka, S. <sup>1,2</sup>, M. Takayama <sup>2</sup>, J. Lee <sup>2</sup>, H. Ezura <sup>1,2</sup> (1.T-PIRC Univ. Tsukuba, 2.Grad. Sch. Lif. Envi. Univ. Tsukuba)

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**P010** Graft transmission of RNA silencing: conferring high temperature tolerance to tomato

Nakamura, S. <sup>1</sup>, K. Hondo <sup>2</sup>, K. Kobayashi <sup>1</sup>, T. Yaeno <sup>1</sup>, ○M. Nishiguchi <sup>1</sup> (1.Agr., Ehime Univ., 2.ADRES, Ehime Univ.)

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**P011** Breeding of 'Biwahanami', a high-yielding wheat cultivar for Japanese white salted noodle with good milling properties and good noodle qualities

○Yanaka, M. <sup>1,2</sup>, K. Takata <sup>1</sup>, N. Ishikawa <sup>1</sup>, W. Funatsuki <sup>1</sup>, Y. Ban <sup>1</sup>, K. Kato <sup>1</sup>  
(1.WARC/NARO, 2.KARC/NARO)

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**P012** Near-isogenic lines of durum wheat for glaucousness inhibitor loci *Iw1*, *Iw3* and *Iw4* derived from wild relatives

○Watanabe, N. (The Little Nursery)

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**P013** Breeding of a new reddish soybean cultivar "Fukuakane" for southern part of Japan

○Takahashi, M. <sup>1</sup>, N. Oki <sup>1</sup>, Y. Kono <sup>2</sup>, M. Takahashi <sup>3</sup>, Y. Nakazawa <sup>1</sup>, K. Komatsu <sup>4</sup>  
(1.NARO, KARC, 2.NARO, CARC, 3.NARO, NICS, 4.NARO, WARC)

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**P014** Interspecific hybridization between cultivated "Sadowara" and wild species in breeding of "Sadowara" eggplant of Miyazaki original vegetable

○Chen, L. <sup>1,2</sup>, K. Yoshimura <sup>2</sup> (1.Fac. Envir. Hort. Sci., Minami Kyushu U., 2.Grad. Sch. Hort. Food Sci., Minami Kyushu U.)

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**P015** A new rice variety 'Kankinokaze' with early heading, good grain appearance, good eating quality and high yield is expected its future extension in west Japan

○Nakanishi, A. <sup>1</sup>, T. Kataoka <sup>1</sup>, K. Tamura <sup>1</sup>, H. Sato <sup>2</sup>, Y. Tamura <sup>3</sup>, M. Sakai <sup>2</sup>, R. Kaji <sup>4</sup>, Y. Takeuchi <sup>1</sup> (1.NARO/KARC, 2.NARO/NICS, 3.JIRCAS, 4.NARO/HARC)

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**P016** Investigation of factors that regulate  $\gamma$ -oryzanol contents in seeds using rice core collections

☆Funakoshi, T., T. Ogawa, T. Tezuka, D. Ohta, S. Yokoi (Graduate School of Life and Environmental Sciences, Osaka Prefecture University)

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**P017** NBRP Tomato: Development of research resources and the outcomes

○Shinozaki, Y. <sup>1</sup>, K. Hoshikawa <sup>1,2</sup>, N. Ito <sup>1</sup>, T. Ariizumi <sup>1</sup>, N. Fukuda <sup>1</sup>, Y. Kanayama <sup>3</sup>, Y. Kubo <sup>4</sup>, K. Yano <sup>5</sup>, K. Aoki <sup>6</sup>, H. Ezura <sup>1</sup> (1.Fac. Life Environ. Sci., Univ. Tsukuba,

2.JIRCAS, 3.Grad. Sch. Agri. Sci., Tohoku Univ., 4.Grad. Sch. Envi. Life Sci., Okayama Univ., 5.Grad. Sch. Agri., Meiji Univ., 6.Grad. Sch. Lif. Envi. Sci., Osaka Pref. Univ.)

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**P018** Sequence polymorphism detected on *Prostrate growth 1* gene of *Oryza rufipogon*

○Inagaki, N. (Advanced Analysis Center, NARO)

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**P019** Development of a simple method for rhizome-lotus-cultivar identification using HRM analysis

Kariya, A. <sup>1</sup>, M. Horii <sup>2</sup>, K. Shirasawa <sup>3</sup>, K. Shinohara <sup>4</sup>, E. Sawada <sup>4</sup>, K. Yashiro <sup>2</sup>, Y. Higuchi <sup>5</sup>, Y. Ishikawa <sup>5</sup>, E. Inoue <sup>1</sup>, ○T. Kuboyama <sup>1</sup> (1.Col. Agr. Ibaraki U., 2.Plant Biotech. Inst., Ibaraki Agr. Cent., 3.Kazusa DNA Res. Inst., 4.Tokushima Agr., Fores., and Fish. Tech. Support Cent., 5.Grad. Sch. Agr. Life Sci., U. Tokyo)

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**P020** Origin of negative phenol color reaction type as revealed by sequence polymorphism of *Si7PPO* gene in foxtail millet

○Fukunaga, K. <sup>1</sup>, M. Nur <sup>1,2</sup>, T. Inoue <sup>1</sup>, K. Ichiani <sup>3</sup> (1.Fac., Life and Environ. Sci., Pref. U. Hiroshima, 2.Jember University, 3.Fac. Agr., Kagoshima U.)

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**P021** Genetic diversity in Cambodian melon landraces revealed by the analysis of molecular markers

☆Tran Phuong, D. <sup>1</sup>, O. Alessa <sup>1</sup>, M. Pervin <sup>1</sup>, G. Shigita <sup>1</sup>, K. Tanaka <sup>2</sup>, S. Yon <sup>3</sup>, S. Sakhan <sup>3</sup>, N. Tomooka <sup>4</sup>, H. Nishida <sup>1</sup>, K. Kato <sup>1</sup> (1.Grad. Sch. Environ. Life Sci., Okayama U., 2.Fac. Agr. Life Sci., Hirosaki U., 3.CRADI, 4.NARO/Genet. Resour. Cent.)

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**P022** Characterization of Mekong Delta rice accessions based on simple profiling of low genetic diversity as a model case of local genetic stocks

☆Nguyen, T. <sup>1,3</sup>, S. Dwiyantri <sup>1</sup>, Y. Koide <sup>1</sup>, J. Nagano <sup>2</sup>, K. Huynh <sup>3</sup>, Q. Huynh <sup>3</sup>, V. Le <sup>3</sup>, Y. Kishima <sup>1</sup> (1.Graduate School of Agriculture, Hokkaido University, Japan, 2.Faculty of Agriculture, Ryukoku University, Japan, 3.Can Tho University, Vietnam)

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**P023** Toward development of whole genome sequence of bitter melon (*Momordica charantia*) at chromosome level

○Matsumura, H. <sup>1</sup>, K. Tarora <sup>2</sup>, N. Taniai <sup>2</sup>, N. Miyagi <sup>2</sup>, H. Takagi <sup>3</sup>, N. Urasaki <sup>2</sup> (1.Gene Research Center, Shinshu University, 2.Okinawa Agricultural Research Center, 3.Ishikawa Prefectural University)

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**P024** Analysis of anthocyanin biosynthesis R and E genes in radish

Tsubaki, N. <sup>1</sup>, M. Ishikawa <sup>2</sup>, K. Komatsu <sup>3</sup>, K. Tanaka <sup>4</sup>, K. Ueda <sup>2</sup>, K. Sakurai <sup>2</sup>, A. Watanabe <sup>2</sup>, H. Akagi <sup>2</sup>, ○H. Takahashi <sup>2</sup> (1.Akita Pref. Agriculture Research Center, 2.Fac. Biores. Sci., Akita Pref. U., 3.Department of Bioresource Development, Tokyo U. of Agriculture, 4.NODAI Genome Research Institute, Tokyo U. of Agriculture)

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**P025** A genome wide identification of SNPs related to low-temperature germinability in rice using backcross inbred lines

☆Tsuchida, D. <sup>1</sup>, H. Takahashi <sup>2</sup>, K. Ueda <sup>2</sup>, K. Sakurai <sup>2</sup>, A. Watanabe <sup>2</sup>, T. Kawamoto <sup>3</sup>, H. Akagi <sup>2</sup> (1.Grad. Sch. Biores., Akita Pref. Univ., 2.Akita Pref. Univ., 3.Akita Pref. Agri. Exp. Stat.)

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**P026** Development of genetic marker for male sterility and selection of male sterility individual from breeding materials using the makers in Japanese cedar

○Mishima, K. <sup>1</sup>, T. Hirao <sup>1</sup>, M. Tsubomura <sup>1</sup>, M. Tamura <sup>2</sup>, M. Kurita <sup>1</sup>, M. Nose <sup>1</sup>, S. Hanaoka <sup>1</sup>, M. Ohira <sup>1</sup>, Y. Hiraoka <sup>1</sup>, N. Kuramoto <sup>1</sup>, M. Takahashi <sup>1</sup>, H. Hoshi <sup>1</sup>, A. Watanabe <sup>2</sup> (1.Forestry and Forest Products Research Institute, Forest Breeding Center, 2.Grad. Sch. Agri, Univ. Kussyu)

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**P027** Construction of linkage maps using Japanese rice recombinant inbred line populations by GRAS-Di technology

☆Ishimaru, Y. <sup>1</sup>, R. Fekih <sup>1</sup>, S. Okada <sup>1</sup>, R. Miyagi <sup>2</sup>, T. Obana <sup>2</sup>, K. Suzuki <sup>3</sup>, M. Inamori <sup>3</sup>, H. Enoki <sup>3</sup>, M. Yamasaki <sup>1</sup> (1.Food Resources Education and Research Ctr., Grad. Sch. Agric., Kobe Univ., 2.Eurofins Genomics K.K., 3.Toyota Motor Corp.)

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**P028** QTL analysis for Pine wood nematode resistance in *Pinus thunbergii*

○Hirao, T. <sup>1</sup>, K. Matsunaga <sup>2</sup>, S. Nagano <sup>3</sup> (1.FFPRI, Forest Bio-Research Center, 2.FFPRI, FTBC, Kyushu Breeding Office, 3.FFPRI, Forest Tree Breeding Center)

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**P029** Linkage relationship between extra-early maturing gene e1 derived from rice mutant Kanto79 and Ghd7

Obara, Y., ○M. Tomita (Res. Inst. Green Sci. & Tech., Shizuoka Univ.)

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**P030** Reconstruction of genetic linkage map based on gene markers and QTL analysis for ergothioneine content in "Tamogitake" mushroom

☆Maeta, K. <sup>1</sup>, S. Yoneyama <sup>2</sup>, T. Azuma <sup>3</sup>, M. Sato <sup>2</sup>, S. Saitoh <sup>2</sup>, T. Tomiyama <sup>4</sup>, T. Matsumoto <sup>1</sup> (1.Fac. of Agr., Univ. of Tottori, 2.Forest Products Res. Inst., Hokkaido Res. Org., 3.Hokkaido Res. Org., 4.Three B Co. Ltd.)

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**P031** QTL analysis for culm diameter and biomass-related traits of a sorghum high-biomass F1 variety "TenTaka"

☆Wake, T. <sup>1</sup>, S. Nakamura-Araki <sup>2</sup>, K. Shinohara-Ohmae <sup>2</sup>, K. Miura <sup>3</sup>, S. Kasuga <sup>4</sup>, T. Sazuka <sup>2</sup> (1.Grad. Sch. Bioagri. Sci., Nagoya Univ., 2.Biosci. and Biotech. Center, Nagoya Univ., 3.Dept. Biosci. Fukui Pref. Univ., 4.AFC, Fac. of Agri., Shinshu Univ.)

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**P032** QTL of yield in soybean under drought paddy field

○Takada, Y. <sup>1</sup>, T. Sayama <sup>1</sup>, Y. Yokota <sup>2</sup>, F. Taguchi-Shiobara <sup>2</sup>, K. Yamashita <sup>1</sup>, K. Komatsu <sup>1</sup> (1.WARC, NARO, 2.NICS, NARO)

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**P033** Analysis of QTLs for yield components in the DH populations derived from wheat cultivars 'Kitahonami' and 'Yumechikara'

☆Tanaka, K. <sup>1</sup>, Y. Terasawa <sup>2</sup>, M. Ito <sup>2</sup>, K. Nagasawa <sup>2</sup>, K. Kawaguchi <sup>2</sup>, K. Hatta <sup>2</sup>, Z. Nishio <sup>1,2</sup> (1.Grad. Sch. Agr., Tokyo Univ. Agr., 2.NARO/HARC)

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**P034** Verification of a soybean QTL for seed coat cracking rate

○Komatsu, K., M. Saruta, K. Yamashita, T. Sayama, Y. Takada (NARO, Western Region Agricultural Research Center)

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**P035** Analysis of the barley grain size genes

☆Aoki, H., M. Seki, M. Nakata, T. Nagamine (NARO, Agricultural Research Center)

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**P036** Genetic resources phenotyping and trials of advanced genomic analysis toward next generation breeding of tea plants

☆Yamashita, H. <sup>1,2</sup>, T. Uchida <sup>2</sup>, H. Katai <sup>3</sup>, L. Kawaguchi <sup>4</sup>, A. Nagano <sup>4</sup>, A. Morita <sup>2</sup>, T. Ikka <sup>2</sup> (1.Uni. Agr., Gifu Univ., 2.Fac. Agr., Shizuoka Univ., 3.Tea Res. Cent., Shizuoka Pref., 4.Fac. Agr., Ryukoku Univ.)

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**P037** Identification of candidate genes involved in accumulation of protein aggregates in embryo of imbibed rice seed under heat stress using GWAS with published SNPs

☆Ueno, N., P. Ngo, T. Yamada (United Grad. Sch. Agr., Tokyo U. Agr. Tec.)

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**P038** Genome-wide association study for flowering time and microspore embryogenesis in rapeseed (*Brassica napus* L.)

☆Abe, C. <sup>1</sup>, H. Kitashiba <sup>2</sup>, K. Hatakeyama <sup>1</sup>, Y. Takahata <sup>1</sup> (1.Fac. Agri., Iwate Univ., 2.Grad. Sch. Agri. Sci., Tohoku Univ.)

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**P039** Association analysis between DNA polymorphisms of *Flowering locus C* genes and earliness of bolting in Asian radish landraces

Kawabata, M. <sup>1</sup>, H. Kobayashi <sup>1</sup>, K. Shirasawa <sup>2</sup>, N. Fukino <sup>3</sup>, H. Hirakawa <sup>2</sup>, O.H. Kitashiba <sup>1</sup> (1.Grad. Sch. Agri. Sci., Tohoku Univ., 2.Kazusa DNA Res. Inst., 3.Inst. Veg. Floric. Sci., NARO)

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**P040** Breeding Nakajimana (*Brassica rapa*) for applying baby leaf

☆Sakamoto, S., N. Ito, H. Kutsuzawa, T. Segawa, H. Koga, A. Katayama, H. Takagi (Biores. Sci., Ishikawa Pref. Univ.)

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**P041** Development of potato line with multiplex resistant gene *H1* to potato cyst nematode and *Ry<sub>chc</sub>* to potato virus Y using rapid estimation method for allele number

☆Sakamoto, Y. <sup>1</sup>, K. Mori <sup>1,2</sup>, W. Watanabe <sup>1,3</sup>, Y. Matsuo <sup>1,4</sup>, M. Ryu <sup>1</sup>, N. Mukojima <sup>1,5</sup> (1.Nagasaki Agric. & For. Tech. Dev. Cent., 2.Nagasaki Pref. Agric. & For. Dep., 3.Nagasaki Pref. Shimabara Dev. Bur., 4.Nagasaki Pref. Goto Dev. Bur., 5.Nagasaki Pref. Ken'oh Dev. Bur.)

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**P042** Marker-assisted selection and evaluation of wheat lines with recombination between WYMV resistance gene and high activity allele of PPO gene on chromosome 2D

☆Kojima, H. <sup>1,2</sup>, F. Kobayashi <sup>1</sup>, G. Ishikawa <sup>1</sup>, M. Fujita <sup>1</sup>, C. Otobe <sup>1,2</sup>, M. Tougou <sup>1</sup>, T. Takayama <sup>1,3</sup>, H. Matsunaka <sup>4</sup>, T. Nakamura <sup>3</sup> (1.NICS, NARO, 2.Grad. Sch. Life Envi. Sci., U. Tsukuba, 3.TARC, NARO, 4.KARC, NARO)

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**P043** Broad-spectrum disease resistance gene *BSR2* affects growth and seed size

☆Maeda, S. <sup>1</sup>, Y. Kondou <sup>2</sup>, M. Matsui <sup>2</sup>, M. Mori <sup>1</sup> (1.NIAS, 2.RIKEN Yokohama)

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**P044** Studies on interactions between VIP1 and protein phosphatase 2A in Arabidopsis

☆Yoon, H. <sup>1</sup>, D. Tsugama <sup>1,2</sup>, K. Fujino <sup>1</sup>, T. Takano <sup>2</sup> (1.Grad. Sch. Agri., Hokkaido Univ., 2.ANESC., Univ. Tokyo)

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**P045** Enhanced FnCpf1-mediated genome editing using crRNA with altered length of target sequence in rice

☆Mikami, M. <sup>1,2</sup>, M. Endo <sup>2</sup>, S. Toki <sup>1,2,3</sup> (1.Grad. Sch. Nanobiol., Yokohama City Univ., 2.NIAS, NARO, 3.Kihara. Inst. Biol. Res., Yokohama City Univ.)

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**P046** Potential role of *Oryza*;KRP3 in regulating rice seed development

☆Oya, S., S. Miyakawa, R. Sugawara, Y. Saitoh (Fac. Agri., Iwate Univ.)

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**P047** DNA-Free genome editing mediated by electroporation

○Chin, D. <sup>1</sup>, S. Makabe <sup>2</sup>, K. Watanabe <sup>3</sup>, T. Igawa <sup>3</sup>, Y. Moriizumi <sup>2</sup>, M. Mii <sup>1</sup> (1.Center for Environment, Health and Field Sciences, Chiba Univ., 2.BEX CO., LTD., 3.Grad. Sc. Hort., Chiba Univ.)

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**P048** CRISPR/Cas9-mediated homologous recombination of the tobacco *ALS* gene

Hirohata, A., I. Sato, K. Kaino, Y. Iwata, N. Koizumi, ○K. Mishiba (Grad. Sch. Life Env. Sci., Osaka Pref. Univ.)

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**P049** Potential role of OsSub63 in regulating rice seed development

☆Nishikata, C., A. Toukairin, Y. Saitoh (Fac. Agri., Iwate Univ.)

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**P050** Field trials of the potato edited epigenetically using grafting

☆Kasai, A. <sup>1</sup>, T. Harada <sup>1</sup>, M. Yamazaki <sup>2</sup>, Y. Tabei <sup>2</sup>, Y. Wakasa <sup>2</sup>, T. Okazaki <sup>3</sup>, K. Yamamoto <sup>3</sup>, S. Akada <sup>1</sup> (1.Fac. Agric. Life Sci., Hirosaki Univ., 2.NARO, 3.Matsutani Chemical Industry Co., Ltd.)

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**P051** Studies for apple improvement by new breeding technology (RdDM by grafting)

☆Kanno, A. <sup>1</sup>, A. Kasai <sup>1</sup>, T. Harada <sup>2</sup>, T. Harada <sup>2</sup>, K. Haba <sup>2</sup>, T. Harada <sup>1</sup>, O. Noro <sup>3</sup>, S. Akada <sup>1</sup> (1.Fac. Agric. Life Sci., Hirosaki Univ., 2.HARADA NURSERY Co., Ltd., 3.JATAFF)

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**P052** Chromosome analysis of interspecific hybrid between tea plant and ornamental camellia using by CHIASIV



○Furukawa, K. <sup>1</sup>, M. Watanabe <sup>1</sup>, E. Harada <sup>2</sup>, F. Kitamura <sup>3</sup> (1.National Institute of Technology, Numazu College, 2.Nagaoka University of Technology, 3.Hiroshima University)

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**P053** Transient changes of transcriptomes induced by X-ray computed tomography inspection

☆Nishijima, R. <sup>1</sup>, N. Suzui <sup>2</sup>, Y. Yin <sup>2</sup>, Y. Miyoshi <sup>2</sup>, K. Kurita <sup>2</sup>, M. Yamaguchi <sup>2</sup>, S. Teramoto <sup>3</sup>, Y. Kitomi <sup>3</sup>, T. Tanabata <sup>4</sup>, Y. Uga <sup>3</sup>, N. Kawachi <sup>2</sup>, T. Kawakatsu <sup>1</sup> (1.NIAS, 2.TARRI, QST, 3.NICS, 4.Kazusa DNA Res. Inst.)

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**P054** Evaluation of Japanese major cultivars for resistance to bacterial seedling rot caused by *Burkholderia glumae*

○Mizobuchi, R. <sup>1</sup>, S. Fukuoka <sup>1</sup>, C. Tsuiki <sup>1</sup>, S. Tsushima <sup>2</sup>, H. Sato <sup>1</sup> (1.Institute of Crop Science, NARO, 2.Department of Molecular Microbiology, Tokyo University of Agriculture)

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**P055** QTL analysis for brown spot resistance in rice using two sets of CSSLs derived from the crosses Tupa121-3/Koshihikari and Naba/Koshihikari

○Ota, Y. <sup>1</sup>, K. Matsumoto <sup>1</sup>, Y. Nakayama <sup>1</sup>, T. Ohno <sup>1</sup>, T. Yamakawa <sup>1</sup>, R. Mizobuchi <sup>2</sup>, H. Sato <sup>2</sup> (1.Mie Pref. Agri. Res. Inst., 2.NARO)

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**P056** QTL mapping for field resistance to rice blast in a forage rice variety, Tachisugata by using Simple field resistance test device

○Sato, H. (Institute of Crop Science, NARO)

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**P057** Functional analysis of *Crr1a*, a gene for resistance to clubroot disease (*Plasmodiophora brassicae* Woronin) in *Brassica rapa* L.

☆Yuzawa, S. <sup>1</sup>, H. Abe <sup>2</sup>, Y. Takahata <sup>1</sup>, K. Hatakeyama <sup>1</sup> (1.Sch. Agr., Univ. Iwate, 2.RIKEN BioResource Center)

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**P058** Identification of a resistance gene to white-backed brown planthopper; WBPH13 from *Oryza minuta* in rice

○Hirabayashi, H. <sup>1</sup>, K. Matsuhira <sup>2</sup>, K. Wakamatsu <sup>2</sup>, A. Tanaka <sup>2</sup>, T. Tanogashira <sup>2</sup>, M. Matsumura <sup>3</sup>, D. Brar <sup>4</sup>, T. Ishii <sup>1</sup> (1.Inst. of Crop Sci., NARO, 2.Kagoshima Pref. Inst. for Agri. Devel., 3.NARO, 4.IRRI)

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**P059** Characterization of brown planthopper resistance using near-isogenic and pyramided lines carrying resistance genes in rice

☆Nguyen Dinh, C. <sup>1</sup>, T. Okano <sup>2</sup>, M. Matsumura <sup>3</sup>, H. Yasui <sup>4</sup>, D. Fujita <sup>2</sup> (1.United Grad. Sch. Agr. Sci., Kagoshima Univ., 2.Fac. Agr. Saga Univ., 3.Kyushu Okinawa Agr. Res. Ctr., NARO, 4.Grad. Sch. Fac. Agr., Kyushu Univ)

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**P060** QTL analysis of adzuki bean resistance to soybean cyst nematode using genome-wide SNPs data

○Souma, C. <sup>1</sup>, T. Toudai <sup>2</sup>, M. Okuyama <sup>2</sup>, F. Kousaka <sup>2</sup>, T. Suzuki <sup>1</sup> (1.Chuo Agri. Exp. Stn., HRO, 2.Tokachi Agri. Exp. Stn., HRO)

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**P061** Waterlogging tolerance at the post-anthesis stage in soybean lines carrying qFTA2-1 from 'Shokukei 32'

○Yamashita, Y. <sup>1</sup>, H. Kurosaki <sup>1</sup>, C. Suzuki <sup>2</sup> (1.Central Agri. Exp. Stn., HRO, 2.Tokachi Agri. Exp. Stn., HRO)

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**P062** Development of simple bioassay method for assessing salinity stress tolerance in wheat

○Yamamoto, M., T. Kawazoe, S. Takenaka, C. Nakamura (Faculty of Agriculture, Ryukoku University)

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**P063** Diversity of salinity stress tolerance among common wheat cultivars

Kawazoe, T., M. Yamamoto, S. Ono, K. Inoue, M. Takenaka, S. Takenaka, S. Kawai, ☆S. Takenaka, C. Nakamura (Fac. Agric., Ryukoku Univ.)

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**P064** Allelic variation of fructan-related genes in barley

☆Nakata, M., M. Seki, H. Aoki, T. Nagamine (CARC, NARO)

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**P065** Breeding lines with deeper seed dormancy selected from gamma-ray irradiated wheat mutant population

○Jinno, H. <sup>1</sup>, T. Sonoda <sup>1</sup>, M. Kasuya <sup>1</sup>, S. Ohnishi <sup>1</sup>, F. Kobayashi <sup>2</sup>, Y. Oono <sup>2</sup>, H. Handa <sup>2</sup>, K. Sugimoto <sup>2</sup> (1.Kitami. Agri. Exp. Stn., HRO, 2.Institute of Crop Science, NARO)

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**P066** Identification of candidate genes involved in increasing of salinity tolerance in rice seedlings inoculated with *Bacillus pumilus* TUAT1 strain using GWAS

☆Ngo, P., N. Ueno, T. Yokoyama, M. Kanekatsu, T. Yamada (United Grad. Sch. Agr., Tokyo U. Agr. Tec.)

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**P067** Characterization of a plasma membrane protein gene PgPM19 involved in abiotic stress responses in pearl millet

☆Yu, P. <sup>1</sup>, H. Shinde <sup>1</sup>, A. Dudhate <sup>1</sup>, D. Tsugama <sup>1</sup>, S. Liu <sup>2</sup>, T. Takano <sup>1</sup> (1.The Laboratory of Environmental Stress Tolerance, The University of Tokyo, 2.State Key Laboratory of Subtropical Silviculture, Zhejiang A&F University, China)

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**P068** Characterization of unique stress tolerance of an *argonaute1* mutant of *Arabidopsis*

○Watanabe, A., K. Ochiai, S. Nakamura, K. Ueda, K. Sakurai, H. Takahashi, H. Akagi (Fac. Bioresource Sci., Akita Prefectural Univ.)

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**P069** Transcriptome analysis in synthetic wheat

☆Nakayama, R., A. Tokunaga, M. Tadokoro, K. Kawaura (KIBR, Yokohama City U.)

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**P070** Transcriptomic analysis of the salt stress responses in abiotic stress tolerance wheat

☆Safi, M. <sup>1</sup>, W. Ahmadzai <sup>1</sup>, R. Nakayama <sup>1</sup>, S. Takenaka <sup>2</sup>, M. Nitta <sup>3</sup>, S. Nasuda <sup>3</sup>, K. Kawaura <sup>1</sup> (1.KIBR, Yokohama City U., 2.Fac. Agrc., Ryukoku Univ., 3.Grad. Sch. Agr., Kyoto U.)

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**P071** Gene-expression profiles to predict intraspecific diversity of drought stress in Japanese cedar

○Nose, M. <sup>1</sup>, Y. Takashima <sup>1</sup>, S. Nagano <sup>1</sup>, M. Matsushita <sup>1</sup>, Y. Hiraoka <sup>1</sup>, T. Hirao <sup>2</sup> (1.Forest Tree Breeding Center, FFPRI, 2.Forest Bio-Research Center, FFPRI)

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**P072** Herbicide resistance conferred by modification of analogous gene of rice-derived herbicide resistance gene HIS1

○Hirose, S. <sup>1</sup>, Y. Tozawa <sup>2</sup>, S. Takei <sup>2</sup>, N. Takamura <sup>2</sup>, N. Sakuma <sup>3</sup>, M. Ohshima <sup>1</sup>, M. Kawata <sup>4</sup>, H. Yoshida <sup>1</sup>, K. Murata <sup>5</sup>, H. Maeda <sup>6</sup>, A. Yamazaki <sup>7</sup>, K. Sekino <sup>7</sup>, S. Suzuki <sup>7</sup>, M. Kuroki <sup>8</sup> (1.NARO Inst. Agrobiological Sci., 2.Grad. Sch. Sci. & Eng., Univ. Saitama, 3.Fac. Sci., Univ. Saitama, 4.NARO Inst. Vegetable and Floriculture Science, 5.Toyama Pref. Agricultural, Forestry and Fisheries Research Center, 6.NARO Central Region Agricultural Research Center, 7.SDS Biotech K.K., 8.NARO Inst. of Crop Science)

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**P073** Development of a simultaneous detection method for diagnostic DNA markers of four potato cyst nematode resistance genes

○Shimosaka, E., K. Asano, K. Akai, S. Okamoto, S. Tamiya (Hokkaido Agri. Res. Cent., NARO)

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**P074** Development of evaluation system of resistance/susceptibility in rice to *M. incognita*

☆Sunohara, H. <sup>1</sup>, S. Kaida <sup>2</sup>, S. Sawa <sup>1</sup> (1.Fac. Adv. Sci. Technol., Kumamoto U., 2.Fac. Sci., Kumamoto U.)

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**P075** Wheat response to progressive drought stress at the flowering stage

☆Itam, M. <sup>1</sup>, S. Matsunaga <sup>2</sup>, R. Mega <sup>3</sup>, Y. Yamasaki <sup>3</sup>, H. Tsujimoto <sup>1,2,3</sup> (1.United Graduate School of Agricultural Sciences, Tottori University, 2.Graduate School of Sustainability Science, Tottori University, 3.Arid Land Research Center, Tottori University)

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**P076** Nitrogen absorption in soybean strain Toiku253

○Kobayashi, S. <sup>1</sup>, C. Suzuki <sup>1</sup>, Y. Watanabe <sup>2</sup>, S. Koyano <sup>1</sup> (1.Tokachi Agricultural Experiment Station, 2.Hokkaido Research Organization Collaboration Promotion Division)

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**P077** Utilization of genes increasing sink size in high-yield rice breeding program

○Kobayashi, A. <sup>1</sup>, F. Nakaoka <sup>1</sup>, Y. Morozumi <sup>1</sup>, Y. Machida <sup>1</sup>, K. Miura <sup>2</sup>, K. Tomita <sup>1</sup> (1.Fukui Agr. Exp. Stn., 2.Fukui Pref. Univ.)

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**P078** Effect of selection for soybean yield in drained paddy field with heavy clay soil in Hokuriku region

○Kono, Y. <sup>1</sup>, A. Kikuchi <sup>2</sup>, K. Takahashi <sup>3</sup>, Y. Takada <sup>4</sup>, M. Takahashi <sup>5</sup> (1.NARO, CARC, 2.NARO, TARC, 3.NARO, NICS, 4.NARO, WARC, 5.NARO, KARC)

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**P079** High-yielding strategy focused on allele combination among flowering related loci in soybean

○Sayama, T. <sup>1</sup>, T. Yamada <sup>2</sup>, A. Kaga <sup>2</sup>, M. Ishimoto <sup>2</sup>, S. Watanabe <sup>3</sup>, K. Yamashita <sup>1</sup>, K. Komatsu <sup>1</sup>, Y. Takada <sup>1</sup> (1.WARC, NARO, 2.ICS, NARO, 3.Fac. Agric., Saga U.)

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**P080** Analysis for *qPBN3* affecting panicle branching in rice

☆Agata, A. <sup>1</sup>, T. Hobo <sup>2</sup>, K. Doi <sup>1</sup>, Y. Inukai <sup>3</sup>, D. Makihara <sup>3</sup>, H. Kitano <sup>2</sup> (1.Grad. Sch. Bioagr. Sci., Nagoya U., 2.Biosci. Biotec. Ctr., Nagoya U., 3.ICCAE, Nagoya U.)

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**P081** Identification of rice genotypes conferring extremely early heading in Hokkaido

Shimanuki, W. <sup>1</sup>, Y. Hirayama <sup>2</sup>, S. Yoshikawa <sup>1</sup>, N. Takahashi <sup>3</sup>, C. Kawahara <sup>3</sup>, I. Takamure <sup>3</sup>, T. Sato <sup>4</sup>, ○K. Kato <sup>1</sup> (1.Obihiro Univ. Agr. & Vet. Med., 2.Kamikawa Agr. Exp. Stn., HRO, 3.Grad. Sch. Agr., Hokkaido Univ., 4.Donan Agr. Exp. Stn., HRO)

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**P082** A novel QTL *qOPW11* associated with rice one panicle weight influences formation of rice panicle and tiller branch

☆Okada, S. <sup>1,2</sup>, M. Sasaki <sup>2</sup>, M. Yamasaki <sup>2</sup> (1.JSPS Research Fellow, 2.Food Resources Education and Research Ctr., Grad. Agric. Sci., Kobe U.)

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**P083** Effects of Foliar Application of Nitrogen and Number of Flowers on Seed Traits in Dainagon Azuki Bean

○Hiura, Y. <sup>1</sup>, Y. Yoshida <sup>2</sup> (1.Faculty of Agriculture, Kobe University, 2.Food Resources Education and Research Center, Graduate School of Agricultural Science, Kobe University)

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**P084** Candidate gene analysis of *Flowering Date1*, essential for photoperiod insensitivity in adzuki bean cultivar 'Shumari'

☆Imoto, Y. <sup>1</sup>, Y. Horiuchi <sup>2</sup>, S. Matsuda <sup>1</sup>, S. Yoshikawa <sup>1</sup>, M. Mori <sup>1</sup>, Y. Tokuji <sup>1</sup>, K. Kato <sup>1</sup> (1.Obihiro Univ. Agr. & Vet. Med., 2.Tokachi Agr. Exp. Sta., HRO)

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**P085** Hybrid vigor of F1 plants derived from crosses between Indica and Japonica Group cultivars for CW-CMS/Rf17 system

○Fukuta, Y. <sup>1</sup>, H. Saito <sup>1</sup>, A. Tomita <sup>1</sup>, T. Kazama <sup>2</sup>, T. Sato <sup>2</sup>, M. Oka <sup>3</sup>, K. Toriyama <sup>2</sup> (1.JIRCAS, 2.Tohoku University, 3.Miyagi University of Education)

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**P086** Role of plant hormones in rhizogenesis process of *Oryza longistaminata*

○Hobo, T. <sup>1</sup>, K. Bessho-Uehara <sup>1</sup>, A. Agata <sup>2</sup>, T. Omori <sup>2</sup>, H. Kondo <sup>2</sup>, R. Stefan <sup>1</sup>, T. Furuta <sup>1</sup>, T. Kawahara <sup>2</sup>, T. Hachiya <sup>2</sup>, H. Sakakibara <sup>2</sup>, S. Yamaguchi <sup>3</sup>, K. Nagai <sup>1</sup>, M. Ashikari <sup>1</sup> (1.Biosci. Biotec. Ctr., Nagoya U., 2.Grad. Sch. Bioagr. Sci., Nagoya U., 3.Kyoto U.)

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**P087** Geographic bias of *Vrn-A3* multiple alleles in cultivated emmer wheat ( *Triticum turgidum* L. ssp. *dicoccum*)

☆Nishimura, K., R. Takisawa, T. Nabeshima, E. Maai, T. Nakazaki (Grad. Sch. Agri., Univ. Kyoto)

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**P088** Extra early durum wheat developed by introducing early alleles of *LUX/PCL1* from common wheat

☆Luo, G. <sup>1</sup>, G. Haque <sup>1</sup>, K. Takata <sup>2</sup>, H. Nishida <sup>1</sup>, K. Kato <sup>1</sup> (1.Grad. Sch. Environ. Life Sci., Okayama U., 2.WARC/NARO)

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**P089** Study on the difference in tuber formation timing among potato cultivars

○Naimov, A. <sup>1,2</sup>, K. Watanabe <sup>2</sup>, A. Kikuchi <sup>2</sup> (1.Grad. Sch. Life & Env. Sci., U. Tsukuba, 2.T-PIRC Gene Research Center, U. Tsukuba)

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**P090** Genetic analysis of cultivar difference for nodulation traits of soybeans in a field

○Umehara, Y. <sup>1</sup>, M. Hayashi <sup>2</sup>, A. Kaga <sup>3</sup>, F. Tanaka <sup>2</sup>, Y. Ohwaki <sup>2</sup>, M. Ishimoto <sup>3</sup>, M. Hayashi <sup>4</sup> (1.NIAS, 2.CARC/NARO, 3.NICS, 4.CSRS/RIKEN)

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**P091** Deficiency in Q chromosome of *Nicotiana tabacum* is involved in overcoming of hybrid lethality detected in *N. suaveolens* x *N. tabacum*

☆Nakata, K. <sup>1</sup>, D. Nagashima <sup>1</sup>, W. Marubashi <sup>2</sup>, M. Kanekatsu <sup>1</sup>, T. Yamada <sup>1</sup> (1.Grad. Sch. Agr., Tokyo U. Agr. Tech., 2.Fac. Agr., Meiji U.)

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**P092** Identification of aggregated proteins accumulated by generated reactive oxygen species in cultured cells of tobacco Hybrid showing lethality

○Arai, T. <sup>1</sup>, N. Ueno <sup>1</sup>, W. Marubasi <sup>2</sup>, T. Yamada <sup>1</sup>, M. Kanekatu <sup>1</sup> (1.Tokyo University of Agriculture and Technology, 2.Meiji University)

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**P093** Callus formation and plant regeneration through anther culture of F<sub>1</sub> plants crossing between 'Kita-ake' and 'Italica Livorno' rice varieties

○Okamoto, Y., T. Ito, T. Wagatsuma (Rakuno Gakuen U.)

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**P094** Production haploid of *Disa* cultivar (Orchidaceae) in *in vitro* ovary culture without pollination

☆Nakano, A. <sup>1</sup>, J. Kato <sup>2</sup> (1.Grad. Sch Educ., Aichi U. Educ, 2.Dept. Biology, Aichi U. Educ.)

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**P095** Possibility of early seedling production by ovary culture and immature seed culture in *Phalaenopsis*

Miyachi, U. <sup>1</sup>, A. Iwata <sup>1</sup>, M. Kameyama <sup>2</sup>, A. Nakano <sup>2</sup>, ○J. Kato <sup>1</sup> (1.Dept. Sci. Educ., Aichi U. Educ, 2.Grad. Sch. Educ., Aichi U. Educ)

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**P096** Molecular dissection of the gene expression mechanism of intra-species unilateral incompatibility gene at the pollen side, *PUI1*, in *Brassica rapa*

☆Sato, Y. <sup>1</sup>, Y. Takada <sup>1</sup>, Y. Wada <sup>2</sup>, S. Takayama <sup>3</sup>, G. Suzuki <sup>4</sup>, M. Watanabe <sup>1</sup> (1.Grad. Sch. Life Sci., Tohoku Univ., 2.Grad. Sch. Biol. Sci., Nara Institute of Sci. and Tech., 3.Grad. Sch. Agric. Life Sci., Tokyo Univ., 4.Div. Natl. Sci., Osaka Kyoiku Univ.)

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**P097** Difference in the activities among *restorer-of-fertility 1* alleles in sugar beet

Arakawa, T., M. Matsunaga, S. Ue, K. Matsui, K. Itoh, K. Kitazaki, ○T. Kubo (Res. Fac. Agr., Hokkaido Univ.)

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**P098** Identification and histological observation of genic male sterility locus expressed in local native turnip 'Tennoji-kabu' and 'Kida-aokabu'

☆Ozeki, M. <sup>1</sup>, K. Komatsu <sup>2</sup>, Y. Mitsui <sup>1</sup>, K. Wakui <sup>2</sup> (1.Grad. Human and Animal-plant Relationships, Tokyo Univ. of Agri., 2.Bioresource Development, Tokyo Univ. of Agri.)

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**P099** Comparative analysis of metabolic change related to fertility restoration for Owen cytoplasmic male sterility in beet

☆Honma, Y. <sup>1</sup>, T. Kubo <sup>2</sup> (1.Kitami Institute of Technology, 2.Hokkaido University)

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**P100** The exploration of functional domains and target RNAs of MEL2, a component of the cytoplasmic RNA granule regulating mitosis-to-meiosis transition in rice

☆Mimura, M. <sup>1</sup>, S. Ono <sup>1</sup>, K. Nonomura <sup>1,2</sup> (1.Plant Cytogenetics., Natl. Inst. Genet, 2.Dept. Life Sci., Grad. Univ. Adv. Study/SOKENDAI)

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