Matthias Wissuwa

List of Publications by Year
in descending order

101 papers	6,944 citations	61977 43 h-index	62593 80 g-index
103 all docs	103 docs citations	103 times ranked	5281 citing authors

#	Article	IF	Citations
1	The protein kinase Pstol1 from traditional rice confers tolerance of phosphorus deficiency. Nature, 2012, 488, 535-539.	27.8	662
2	Genetic and genomic approaches to develop rice germplasm for problem soils. Plant Molecular Biology, 2007, 65, 547-570.	3.9	315
3	Substitution mapping of Pup1: a major QTL increasing phosphorus uptake of rice from a phosphorus-deficient soil. Theoretical and Applied Genetics, 2002, 105, 890-897.	3.6	236
4	Response of Rice to Al Stress and Identification of Quantitative Trait Loci for Al Tolerance. Plant and Cell Physiology, 2002, 43, 652-659.	3.1	234
5	Novel approaches in plant breeding for rhizosphere-related traits. Plant and Soil, 2009, 321, 409-430.	3.7	233
6	Improving phosphorus use efficiency: a complex trait with emerging opportunities. Plant Journal, 2017, 90, 868-885.	5.7	229
7	Genotypic variation for tolerance to phosphorus deficiency in rice and the potential for its exploitation in rice improvement. Plant Breeding, 2001, 120, 43-48.	1.9	220
8	Mapping of QTLs for phosphorus-deficiency tolerance in rice (Oryza sativa L.). Theoretical and Applied Genetics, 1998, 97, 777-783.	3.6	214
9	How Do Plants Achieve Tolerance to Phosphorus Deficiency? Small Causes with Big Effects. Plant Physiology, 2003, 133, 1947-1958.	4.8	180
10	Is root growth under phosphorus deficiency affected by source or sink limitations?. Journal of Experimental Botany, 2005, 56, 1943-1950.	4.8	180
11	Rice grain zinc concentrations as affected by genotype, native soil-zinc availability, and zinc fertilization. Plant and Soil, 2008, 306, 37-48.	3.7	175
12	Effects of Zinc Deficiency on Rice Growth and Genetic Factors Contributing to Tolerance. Plant Physiology, 2006, 142, 731-741.	4.8	173
13	Enhancing phosphorus and zinc acquisition efficiency in rice: a critical review of root traits and their potential utility in rice breeding. Annals of Botany, 2013, 112, 331-345.	2.9	173
14	Developing Rice with High Yield under Phosphorus Deficiency: <i>Pup1</i> Sequence to Application Â Â. Plant Physiology, 2011, 156, 1202-1216.	4.8	165
15	Organic Anion Exudation by Lowland Rice (Oryza sativa L.) at Zinc and Phosphorus Deficiency. Plant and Soil, 2006, 283, 155-162.	3.7	139
16	Rethinking Internal Phosphorus Utilization Efficiency. Advances in Agronomy, 2012, 116, 185-217.	5.2	123
17	Title is missing!. Plant and Soil, 2001, 237, 275-286.	3.7	115
18	Rice auxin influx carrier OsAUX1 facilitates root hair elongation in response to low external phosphate. Nature Communications, 2018, 9, 1408.	12.8	110

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19	Development and application of gene-based markers for the major rice QTL Phosphorus uptake 1. Theoretical and Applied Genetics, 2010, 120, 1073-1086.	3.6	108
20	Evidence for the mechanisms of zinc uptake by rice using isotope fractionation. Plant, Cell and Environment, 2010, 33, 370-381.	5.7	107
21	Response to zinc deficiency of two rice lines with contrasting tolerance is determined by root growth maintenance and organic acid exudation rates, and not by zincâ€transporter activity. New Phytologist, 2010, 186, 400-414.	7.3	106
22	The role of root size versus root efficiency in phosphorus acquisition in rice. Journal of Experimental Botany, 2016, 67, 1179-1189.	4.8	101
23	Root hair formation in rice (<i>Oryza sativa</i>L.) differs between root types and is altered in artificial growth conditions. Journal of Experimental Botany, 2016, 67, 3699-3708.	4.8	95
24	Genotypic variation in grain phosphorus concentration, and opportunities to improve P-use efficiency in rice. Field Crops Research, 2010, 119, 154-160.	5.1	91
25	Genotypic variation in tolerance to elevated ozone in rice: dissection of distinct genetic factors linked to tolerance mechanisms. Journal of Experimental Botany, 2008, 59, 3741-3752.	4.8	88
26	Improving phosphorus efficiency in cereal crops: Is breeding for reduced grain phosphorus concentration part of the solution?. Frontiers in Plant Science, 2013, 4, 444.	3.6	83
27	Unmasking Novel Loci for Internal Phosphorus Utilization Efficiency in Rice Germplasm through Genome-Wide Association Analysis. PLoS ONE, 2015, 10, e0124215.	2.5	83
28	Mechanisms of ozone tolerance in rice: characterization of two QTLs affecting leaf bronzing by gene expression profiling and biochemical analyses. Journal of Experimental Botany, 2010, 61, 1405-1417.	4.8	82
29	A comparative proteome approach to decipher the mechanism of rice adaptation to phosphorous deficiency. Proteomics, 2009, 9, 159-170.	2.2	80
30	From promise to application: root traits for enhanced nutrient capture in rice breeding. Journal of Experimental Botany, 2016, 67, 3605-3615.	4.8	79
31	The Frustration with Utilization: Why Have Improvements in Internal Phosphorus Utilization Efficiency in Crops Remained so Elusive?. Frontiers in Plant Science, 2011, 2, 73.	3.6	78
32	Integration of P acquisition efficiency, P utilization efficiency and low grain P concentrations into P-efficient rice genotypes for specific target environments. Nutrient Cycling in Agroecosystems, 2016, 104, 413-427.	2.2	78
33	Comparative sequence analyses of the major quantitative trait locus <i>p</i>hosphorus <i>up</i>take <i>1</i> (<i>Pup1</i>) reveal a complex genetic structure. Plant Biotechnology Journal, 2009, 7, 456-471.	8.3	75
34	Combining a modelling with a genetic approach in establishing associations between genetic and physiological effects in relation to phosphorus uptake. Plant and Soil, 2005, 269, 57-68.	3.7	69
35	Stress Response Versus Stress Tolerance: A Transcriptome Analysis of Two Rice Lines Contrasting in Tolerance to Phosphorus Deficiency. Rice, 2009, 2, 167-185.	4.0	66
36	A dual porosity model of nutrient uptake by root hairs. New Phytologist, 2011, 192, 676-688.	7.3	58

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37	The roots of future rice harvests. Rice, 2014, 7, 29.	4.0	57
38	Phosphorus remobilization from rice flag leaves during grain filling: an <scp>RNA</scp>â€seq study. Plant Biotechnology Journal, 2017, 15, 15-26.	8.3	55
39	Superior Root Hair Formation Confers Root Efficiency in Some, But Not All, Rice Genotypes upon P Deficiency. Frontiers in Plant Science, 2016, 7, 1935.	3.6	54
40	Root metabolic response of rice (Oryza sativa L.) genotypes with contrasting tolerance to zinc deficiency and bicarbonate excess. Planta, 2012, 236, 959-973.	3.2	51
41	The knowns and unknowns of phosphorus loading into grains, and implications for phosphorus efficiency in cropping systems. Journal of Experimental Botany, 2016, 67, 1221-1229.	4.8	51
42	Phosphorus uptake, partitioning and redistribution during grain filling in rice. Annals of Botany, 2016, 118, 1151-1162.	2.9	50
43	Nitrification inhibition activity, a novel trait in root exudates of rice. AoB PLANTS, 2010, 2010, plq014.	2.3	47
44	Leaf ascorbic acid level â€" Is it really important for ozone tolerance in rice?. Plant Physiology and Biochemistry, 2012, 59, 63-70.	5.8	47
45	Screening for internal phosphorus utilisation efficiency: comparison of genotypes at equal shoot P content is critical. Plant and Soil, 2016, 401, 79-91.	3.7	45
46	Effect of methyl 3-4-hydroxyphenyl propionate, a Sorghum root exudate, on N dynamic, potential nitrification activity and abundance of ammonia-oxidizing bacteria and archaea. Plant and Soil, 2013, 367, 627-637.	3.7	44
47	Strategic phosphorus (P) application to the nursery bed increases seedling growth and yield of transplanted rice at low P supply. Field Crops Research, 2016, 186, 10-17.	5.1	40
48	Negative effects of tropospheric ozone on the feed value of rice straw are mitigated by an ozone tolerance QTL. Global Change Biology, 2011, 17, 2319-2329.	9.5	39
49	Does reducing seed-P concentrations affect seedling vigor and grain yield of rice?. Plant and Soil, 2015, 392, 253-266.	3.7	39
50	Development of a SNP genotyping panel for detecting polymorphisms in Oryza glaberrima/O. sativa interspecific crosses. Euphytica, 2015, 201, 67-78.	1.2	39
51	Biochemical factors conferring shoot tolerance to oxidative stress in rice grown in low zinc soil. Functional Plant Biology, 2010, 37, 74.	2.1	38
52	A novel allele of the P-starvation tolerance gene OsPSTOL1 from African rice (Oryza glaberrima Steud) and its distribution in the genus Oryza. Theoretical and Applied Genetics, 2014, 127, 1387-1398.	3.6	38
53	Genotypic Variation in Grain P Loading across Diverse Rice Growing Environments and Implications for Field P Balances. Frontiers in Plant Science, 2016, 7, 1435.	3.6	37
54	Revisiting the role of organic acids in the bicarbonate tolerance of zinc-efficient rice genotypes. Functional Plant Biology, 2011, 38, 493.	2.1	36

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55	Pyramiding of ozone tolerance QTLs OzT8 and OzT9 confers improved tolerance to season-long ozone exposure in rice. Environmental and Experimental Botany, 2014, 104, 26-33.	4.2	36
56	Rice Genotype Differences in Tolerance of Zinc-Deficient Soils: Evidence for the Importance of Root-Induced Changes in the Rhizosphere. Frontiers in Plant Science, 2015, 6, 1160.	3.6	35
57	Genomeâ€wide association and gene validation studies for early root vigour to improve direct seeding of rice. Plant, Cell and Environment, 2018, 41, 2731-2743.	5.7	35
58	Phosphorus uptake commences at the earliest stages of seedling development in rice. Journal of Experimental Botany, 2018, 69, 5233-5240.	4.8	33
59	Enhanced ascorbate level improves multi-stress tolerance in a widely grown indica rice variety without compromising its agronomic characteristics. Journal of Plant Physiology, 2019, 240, 152998.	3.5	28
60	Remobilisation of phosphorus fractions in rice flag leaves during grain filling: Implications for photosynthesis and grain yields. PLoS ONE, 2017, 12, e0187521.	2.5	28
61	The <i>OzT8</i> locus in rice protects leaf carbon assimilation rate and photosynthetic capacity under ozone stress. Plant, Cell and Environment, 2011, 34, 1141-1149.	5.7	26
62	Seeds of doubt: Reâ€assessing the impact of grain P concentrations on seedling vigor. Journal of Plant Nutrition and Soil Science, 2012, 175, 799-804.	1.9	26
63	<scp>QTL</scp>s for phosphorus deficiency tolerance detected in upland <scp>NERICA</scp> varieties. Plant Breeding, 2013, 132, 259-265.	1.9	26
64	Lateral Roots: Random Diversity in Adversity. Trends in Plant Science, 2019, 24, 810-825.	8.8	25
65	The contribution of plant traits and soil microbes to phosphorus uptake from low-phosphorus soil in upland rice varieties. Plant and Soil, 2020, 448, 523-537.	3.7	25
66	Rapid Crown Root Development Confers Tolerance to Zinc Deficiency in Rice. Frontiers in Plant Science, 2016, 7, 428.	3.6	22
67	Grain Zn concentrations and yield of Zn-biofortified versus Zn-efficient rice genotypes under contrasting growth conditions. Field Crops Research, 2019, 234, 26-32.	5.1	19
68	Metabolomic markers and physiological adaptations for high phosphate utilization efficiency in rice. Plant, Cell and Environment, 2020, 43, 2066-2079.	5.7	19
69	Identification of Loci Through Genome-Wide Association Studies to Improve Tolerance to Sulfur Deficiency in Rice. Frontiers in Plant Science, 2019, 10, 1668.	3.6	17
70	An agar nutrient solution technique as a screening tool for tolerance to zinc deficiency and iron toxicity in rice. Soil Science and Plant Nutrition, 2008, 54, 744-750.	1.9	16
71	Ozone exposure during growth affects the feeding value of rice shoots. Animal Feed Science and Technology, 2010, 155, 74-79.	2.2	16
72	Genetic dissection for zinc deficiency tolerance in rice using bi-parental mapping and association analysis. Theoretical and Applied Genetics, 2017, 130, 1903-1914.	3.6	16

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73	Patterns of stress response and tolerance based on transcriptome profiling of rice crown tissue under zinc deficiency. Journal of Experimental Botany, 2017, 68, 1715-1729.	4.8	16
74	Biochemical indicators of root damage in rice (Oryza sativa) genotypes under zinc deficiency stress. Journal of Plant Research, 2017, 130, 1071-1077.	2.4	16
75	Contrasting development of lysigenous aerenchyma in two rice genotypes under phosphorus deficiency. BMC Research Notes, 2018, 11, 60.	1.4	15
76	Variation in grain yield, and nitrogen, phosphorus and potassium nutrition of irrigated rice cultivars grown at fertile and low-fertile soils. Plant and Soil, 2019, 434, 107-123.	3.7	15
77	Belowâ€ground plantâ€“soil interactions affecting adaptations of rice to iron toxicity. Plant, Cell and Environment, 2022, 45, 705-718.	5.7	15
78	Leaf phosphorus fractionation in rice to understand internal phosphorus-use efficiency. Annals of Botany, 2022, 129, 287-302.	2.9	15
79	Phosphorus Deficiency Alters Nutrient Accumulation Patterns and Grain Nutritional Quality in Rice. Agronomy, 2016, 6, 52.	3.0	14
80	Genetic and physiological traits for internal phosphorus utilization efficiency in rice. PLoS ONE, 2020, 15, e0241842.	2.5	14
81	Rice increases phosphorus uptake in strongly sorbing soils by intraâ€root facilitation. Plant, Cell and Environment, 2022, 45, 884-899.	5.7	14
82	Breeding rice for a changing climate by improving adaptations to water saving technologies. Theoretical and Applied Genetics, 2022, 135, 17-33.	3.6	13
83	Morphological and Physiological Characteristics Associated with Tolerance to Summer Irrigation Termination in Alfalfa. Crop Science, 1997, 37, 704-711.	1.8	12
84	Cost-Benefit Analysis of the Upland-Rice Root Architecture in Relation to Phosphate: 3D Simulations Highlight the Importance of S-Type Lateral Roots for Reducing the Pay-Off Time. Frontiers in Plant Science, 2021, 12, 641835.	3.6	12
85	Biomass and nutrient accumulation rates of rice cultivars differing in their growth duration when grown in fertile and low-fertile soils. Journal of Plant Nutrition, 2020, 43, 251-269.	1.9	10
86	Isotope fractionation of zinc in the paddy rice soil-water environment and the role of 2â€™deoxymugineic acid (DMA) as zincophore under Zn limiting conditions. Chemical Geology, 2021, 577, 120271.	3.3	10
87	Can natural variation in grain P concentrations be exploited in rice breeding to lower fertilizer requirements?. PLoS ONE, 2017, 12, e0179484.	2.5	10
88	Soil <scp>CO₂</scp> venting as one of the mechanisms for tolerance of <scp>Zn</scp> deficiency by rice in flooded soils. Plant, Cell and Environment, 2017, 40, 3018-3030.	5.7	9
89	Novel Sources of aus Rice for Zinc Deficiency Tolerance Identified Through Association Analysis Using High-Density SNP Array. Rice Science, 2018, 25, 293-296.	3.9	9
90	Genomic prediction of zinc-biofortification potential in rice gene bank accessions. Theoretical and Applied Genetics, 2022, 135, 2265-2278.	3.6	9

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91	Phosphorus deficiency tolerance in Oryza sativa: Root and rhizosphere traits. Rhizosphere, 2020, 14, 100198.	3.0	8
92	Does half a millimetre matter? Root hairs for yield stability. A commentary on â€˜Significance of root hairs for plant performance under contrasting field conditions and water deficitâ€™. Annals of Botany, 2021, 128, iii-v.	2.9	8
93	Transcriptional response of rice flag leaves to restricted external phosphorus supply during grain filling in rice cv. IR64. PLoS ONE, 2018, 13, e0203654.	2.5	7
94	Phosphorus Efficient Phenotype of Rice. , 0, , .		6
95	From gene banks to farmerâ€™s fields: using genomic selection to identify donors for a breeding program in rice to close the yield gap on smallholder farms. Theoretical and Applied Genetics, 2021, 134, 3397-3410.	3.6	6
96	Comparative transcriptome analysis reveals a rapid response to phosphorus deficiency in a phosphorus-efficient rice genotype. Scientific Reports, 2022, 12, .	3.3	6
97	Effects of fertilizer micro-dosing in nursery on rice productivity in Madagascar. Plant Production Science, 2021, 24, 170-179.	2.0	4
98	Crown moisture and prediction of plant mortality in drought-stressed alfalfa. Irrigation Science, 1997, 17, 87-91.	2.8	3
99	Evaluation of Low Phosphorus Tolerance of Rice Varieties in Northern Ghana. Sustainable Agriculture Research, 2015, 4, 109.	0.3	2
100	Prospects for Genetic Improvement in Internal Nitrogen Use Efficiency in Rice. Agronomy, 2017, 7, 70.	3.0	2
101	Phenotyping of a rice (Oryza sativa L.) association panel identifies loci associated with tolerance to low soil fertility on smallholder farm conditions in Madagascar. PLoS ONE, 2022, 17, e0262707.	2.5	0