

## PPS Keyword List: Keywords related to Physiology from PPS vol. 1 - 20

### PHYSIOLOGY (D-F)

Keyword		Article title (downloadable pdf link)	Author	Year	DOI
D3-type cyclin (1)		<a href="#">Regulation of Expression of D3-type Cyclins and ADP-Glucose Pyrophosphorylase Genes by Sugar, Cytokinin and ABA in Sweet Potato (<i>Ipomoea batatas</i> Lam.)</a>	Nagata T, et al.	2009	<a href="https://doi.org/10.1626/pps.12.434">10.1626/pps.12.434</a>
Decomposition (6)	Decomposition (3)	<a href="#">Electron Microscopy Related to the Reserve Mobilization in Germinating Rice Seed: Decomposition process of protein bodies</a>	Zakaria S, et al.	1999	<a href="https://doi.org/10.1626/pps.2.100">10.1626/pps.2.100</a>
		<a href="#">Morphological Studies on the Mobilization of Reserves in Germinating Rice Seed: Decomposition process of starch granules</a>	Zakaria S, et al.	2000	<a href="https://doi.org/10.1626/pps.3.152">10.1626/pps.3.152</a>
		<a href="#">Morphological Studies on the Mobilization of Reserves in Japanese Yam (<i>Dioscorea japonica</i> Thunb.) Seed Tuber and Eddo (<i>Colocasia esculenta</i> Schott var. <i>antiquorum</i> Hubbard &amp; Rehder) Seed Corm on and after Sprouting</a>	Kawasaki M, et al.	2001	<a href="https://doi.org/10.1626/pps.4.304">10.1626/pps.4.304</a>
	Decomposition rate (2)	<a href="#">Effects of Soil Moisture and Temperature on Decomposition Rates of Some Waste Materials from Agriculture and Agro-industry</a>	Thongjoo C, et al.	2005	<a href="https://doi.org/10.1626/pps.8.475">10.1626/pps.8.475</a>
		<a href="#">Soil Productivity after Decomposition of Waste Materials under Different Soil Moisture and Temperature</a>	Thongjoo C, et al.	2006	<a href="https://doi.org/10.1626/pps.9.106">10.1626/pps.9.106</a>
	Starch decomposition (1)	<a href="#">Gas Exchange through the Slit between the Lemma and the Palea in the Rice (<i>Oryza sativa</i> L.) Floret before Anthesis</a>	Matsui T, et al.	2003	<a href="https://doi.org/10.1626/pps.6.262">10.1626/pps.6.262</a>
Deficiency / Starvation (7)	Deficiency in cations (1)	<a href="#">Present Soil Chemical Status and Constraints for Rice-Based Cropping Systems in Vientiane Plain and Neighboring Areas, Lao PDR</a>	Matsuo K, et al.	2015	<a href="https://doi.org/10.1626/pps.18.314">10.1626/pps.18.314</a>
	Nitrogen deficiency (3)	<a href="#">Characteristics of Gas Exchange and Chlorophyll Fluorescence during Senescence of Flag Leaf in Different Rice (<i>Oryza sativa</i> L.) Cultivars Grown under Nitrogen-Deficient Condition</a>	Kumagai E, et al.	2009	<a href="https://doi.org/10.1626/pps.12.285">10.1626/pps.12.285</a>
		<a href="#">Characteristics of Gas Exchange and Chlorophyll Fluorescence during Senescence of Flag Leaf in Different Rice (<i>Oryza sativa</i> L.) Cultivars Grown under Nitrogen-Deficient Condition</a>	Kumagai E, et al.	2010	<a href="https://doi.org/10.1626/pps.13.11">10.1626/pps.13.11</a>
		<a href="#">Genetic Variations in Dry Matter Production, Nitrogen Uptake, and Nitrogen Use Efficiency in the AA Genome <i>Oryza</i> Species Grown under Different Nitrogen Conditions</a>	Hamaoka N, et al.	2013	<a href="https://doi.org/10.1626/pps.16.107">10.1626/pps.16.107</a>
	Nitrogen starvation (1)	<a href="#">Role of Belowground Parts of Green Manure Legumes, <i>Crotalaria spectabilis</i> and <i>Sesbania rostrata</i>, in N Uptake by the Succeeding Tendergreen Mustard Plant</a>	Choi B, et al.	2008	<a href="https://doi.org/10.1626/pps.11.116">10.1626/pps.11.116</a>
	Sulfur deficiency (1)	<a href="#">Nutrient Deficiency in the Rice-Stylo (<i>Stylosanthes guianensis</i>) Relay-Intercropping System in Rainfed Lowland Rice Ecosystem in Northeast Thailand</a>	Homma K, et al.	2009	<a href="https://doi.org/10.1626/pps.12.390">10.1626/pps.12.390</a>
	Tolerance to K deficiency (1)	<a href="#">Difference in Tolerance to Potassium Deficiency between Two Maize Inbred Lines</a>	Minjian C, et al.	2007	<a href="https://doi.org/10.1626/pps.10.42">10.1626/pps.10.42</a>
Degradation (6)	C-terminus degradation (1)	<a href="#">Kunitz Soybean Trypsin Inhibitor is Modified at its C-terminus by Novel Soybean Thiol Protease (Protease T1)</a>	Sugawara M, et al.	2007	<a href="https://doi.org/10.1626/pps.10.314">10.1626/pps.10.314</a>
	Partial degradation (1)	<a href="#">Glutelin is partially degraded in globulin-less mutants of rice (<i>Oryza sativa</i> L.)</a>	Katsube-Tanaka T, et al.	2016	<a href="https://doi.org/10.1080/1343943X.2016.1168705">10.1080/1343943X.2016.1168705</a>
	Rhizodegradation (1)	<a href="#">Effect of Rhizodegradation in Diesel-contaminated Soil under Different Soil Conditions</a>	Kaimi E, et al.	2007	<a href="https://doi.org/10.1626/pps.10.105">10.1626/pps.10.105</a>
	Starch degradation (2)	<a href="#">Involvement of <math>\alpha</math>-Amylase Genes in Starch Degradation in Rice Leaf Sheaths at the Post-Heading Stage</a>	Sugimura Y, et al.	2015	<a href="https://doi.org/10.1626/pps.18.277">10.1626/pps.18.277</a>
		<a href="#">Two <math>\beta</math>-amylase genes, <i>OsBAM2</i> and <i>OsBAM3</i>, are involved in starch remobilization in rice leaf sheaths</a>	Hirano T, et al.	2016	<a href="https://doi.org/10.1080/1343943X.2016.11140008">10.1080/1343943X.2016.11140008</a>
Starch synthesis and degradation (1)	<a href="#">Molecular physiological aspects of chalking mechanism in rice grains under high-temperature stress</a>	Mitsui T, et al.	2016	<a href="https://doi.org/10.1080/1343943X.2015.1128112">10.1080/1343943X.2015.1128112</a>	

Dehiscence (14)	Anther dehiscence (7)	Rapid Swelling of Pollen Grains in Response to Floret Opening Unfolds Anther Locules in Rice ( <i>Oryza sativa</i> L.)	Matsui T, et al.	1999	10.1626/pps .2.196
		Comparison between Anthers of two Rice ( <i>Oryza sativa</i> L.) Cultivars with Tolerance to High Temperatures at Flowering or Susceptibility	Matsui T, et al.	2001	10.1626/pps .4.36
		Gas Exchange through the Slit between the Lemma and the Palea in the Rice ( <i>Oryza sativa</i> L.) Floret before Anthesis	Matsui T, et al.	2003	10.1626/pps .6.262
		Stability of Rice Pollination in the Field under Hot and Dry Conditions in the Riverina Region of New South Wales, Australia	Matsui T, et al.	2007	10.1626/pps .10.57
		Sterility and Poor Pollination Due to Early Flower Opening Induced by Methyl Jasmonate	Kobayasi K, et al.	2010	10.1626/pps .13.29
		Heat-Induced Floret Sterility of Hybrid Rice ( <i>Oryza sativa</i> L.) Cultivars under Humid and Low Wind Conditions in the Field of Jiangnan Basin, China	Tian X, et al.	2010	10.1626/pps .13.243
		Percentage of Dehisced Thecae and Length of Dehiscence Control Pollination Stability of Rice Cultivars at High Temperatures	Kobayashi K, et al.	2011	10.1626/pps .14.89
	Cavity for anther dehiscence (1)	Comparison between Anthers of two Rice ( <i>Oryza sativa</i> L.) Cultivars with Tolerance to High Temperatures at Flowering or Susceptibility	Matsui T, et al.	2001	10.1626/pps .4.36
	Dehiscence of anther (1)	Correlation between Viability of Pollination and Length of Basal Dehiscence of the Theca in Rice under a Hot-and-Humid Condition	Matsui T, et al.	2005	10.1626/pps .8.109
	Pod dehiscence (4)	Pod Dehiscence in Soybean: Assessing Methods and Varietal Difference	Romkaew J, et al.	2006	10.1626/pps .9.373
		Pod Dehiscence in Relation to Pod Position and Moisture Content in Soybean	Romkaew J, et al.	2007	10.1626/pps .10.292
		Pod Dehiscence in Relation to Chemical Components of Pod Shell in Soybean	Romkaew J, et al.	2008	10.1626/pps .11.278
		A Major Soybean QTL, <i>qPDH1</i> , Controls Pod Dehiscence without Marked Morphological Change	Suzuki M, et al.	2009	10.1626/pps .12.217
	Theca dehiscence (1)	High Temperature at Flowering Inhibits Swelling of Pollen Grains, a Driving Force for Thecae Dehiscence in Rice ( <i>Oryza sativa</i> L.)	Matsui T, et al.	2000	10.1626/pps .3.430
Deposition (1)	Rhizodeposition (1)	Rhizodeposition of Mucilage, Root Border Cells, Carbon and Water under Combined Soil Physical Stresses in <i>Zea mays</i> L.	Somasundaram S, et al.	2009	10.1626/pps .12.443
Determinate (2)	Determinate (1)	The Relationship between Dry Matter Increase of Seed and Shoot during the Seed-Filling Period in Three Kinds of Soybeans with Different Growth Habits Subjected to Shading and Thinning	Kakiuchi J, et al.	2006	10.1626/pps .9.20
	Determinate type (1)	Differences in Flowering Habit between Determinate and Indeterminate Types of Soybean	Kuroda T, et al.	1998	10.1626/pps .1.18
Development (32)	Development (3)	The Effect of Day to Night Temperature Variation on Leaf Development in Wheat	Tamaki M, et al.	1998	10.1626/pps .1.254
		A Model for Phenological Development of Vietnamese Rice Influenced by Transplanting Shock	Kotera A, et al.	2004	10.1626/pps .7.62
		Developmental Responses of Wheat cv. Norin 61 to Fluence Rate of Green Light	Kasajima S, et al.	2008	10.1626/pps .11.76
	Developmental rate (1)	Effect of Light Quality on Developmental Rate of Wheat under Continuous Light at a Constant Temperature	Kasajima S, et al.	2007	10.1626/pps .10.286
	Developmental stage (2)	Differentiation and Development of Floral Organs at Each Node and Raceme Order in an Indeterminate Type of Soybean	Saitoh K, et al.	1999	10.1626/pps .2.47
		Improvement of Direct Somatic Embryogenesis in Rice by Selecting the Optimal Developmental Stage of Explant and Applying Desiccation Treatment	Mariani TS, et al.	2000	10.1626/pps .3.114
	Developing endosperm (1)	Activities of Enzymes for Sucrose-Starch Conversion in Developing Endosperm of Rice and Their Association with Grain Filling in Extra-Heavy Panicle Types	Kato T, et al.	2007	10.1626/pps .10.442
	Aerenchyma development (1)	Roles of Root Aerenchyma Development and Its Associated QTL in Dry Matter Production under Transient Moisture Stress in Rice	Niones JM, et al.	2013	10.1626/pps .16.205

Development (continued)	Bud development (1)	Position and Development of Differentiated Lateral Buds in Sago Palm ( <i>Metroxylon sagu</i> Rottb.)	Nabeya K, et al.	2015	10.1626/pps.18.435
	Canopy development (1)	Allometric Relationships of Maize Organ Development under Different Water Regimes and Plant Densities	Song Y, et al.	2015	10.1626/pps.18.1
	Granal development (1)	Effects of Salinity Stress on the Structure of Bundle Sheath and Mesophyll Chloroplasts in NAD-Malic Enzyme and PCK Type C <sub>4</sub> Plants	Omoto E, et al.	2010	10.1626/pps.13.169
	Growth and development (1)	Studies on Agronomic Traits of African Rice ( <i>Dryza glaberrima</i> Steud.)	Sumi A, et al.	1998	10.1626/pps.1.199
	Leaf development (2)	Expression of Photosynthesis-Related Genes during the Leaf Development of a C <sub>3</sub> Plant Rice as Visualized by <i>In Situ</i> Hybridization	Tsutsumi K, et al.	2006	10.1626/pps.9.232
		Gene Expression and Accumulation of Rubisco in Bundle Sheath and Mesophyll Cells during Leaf Development and Senescence in Rice, a C <sub>3</sub> Plant	Tsutsumi K, et al.	2008	10.1626/pps.11.336
	Panicle development (1)	Effects of salt and low light intensity during the vegetative stage on susceptibility of rice to male sterility induced by chilling stress during the reproductive stage	Koumoto T, et al.	2016	10.1080/1343943X.2016.1190283
	Phenological development (1)	Phenological Development in Relation to Temperature of Winter Wheat Iwainodaichi Seeded Early in Southwestern Japan	Fukushima A, et al.	2005	10.1626/pps.8.152
	Rhizome development (1)	Effects of Seed Rhizome Size on Growth and Yield of Turmeric ( <i>Curcuma longa</i> L.)	Hossain A, et al.	2005	10.1626/pps.8.86
	Root development (6)	The Effect of Fluctuations of Soil Moisture on Root Development during the Establishment Phase of Sweetpotato	Pardales JRJr, et al.	2000	10.1626/pps.3.134
		Sucrose Metabolism for the Development of Seminal Root in Maize Seedlings	Ogawa A, et al.	2009	10.1626/pps.12.9
		Variation in Root Development Response to Flooding among 92 Soybean Lines during Early Growth Stages	Sakazono S, et al.	2014	10.1626/pps.17.228
		Characterization of the morphological and physiological traits of rice cultivars with adaptation to unflooded condition during early vegetative growth	Matsunami M, et al.	2016	10.1080/1343943X.2015.1128090
		Root development and the expression of aquaporin genes in rice seedlings under osmotic stress	Matsunami M, et al.	2016	10.1080/1343943X.2015.1128109
		Drought-induced root plasticity of two upland NERICA varieties under conditions with contrasting soil depth characteristics	Menge DM, et al.	2016	10.1080/1343943X.2016.11146908
	Root system development (3)	Effects of Pre-Flowering Soil Moisture Deficits on Dry Matter Production and Ecophysiological Characteristics in Soybean Plants under Well Irrigated Conditions during Grain Filling	Hirasawa T, et al.	1998	10.1626/pps.1.8
		Comparison of Root System Development in Two Rice Cultivars During Stress Recovery from Drought and the Plant Traits for Drought Resistance	Trillana N, et al.	2001	10.1626/pps.4.155
		Effects of Soil Moisture Depletion for One Month before Flowering on Dry Matter Production and Ecophysiological Characteristics of Wheat Plants in Wet Soil during Grain Filling	Nakamura E, et al.	2003	10.1626/pps.6.195
	Seed development (2)	Fatty Acid Content of Seed at Different Development Stages in Canola on Different Soil Types with Low Organic Matter	Onemli F.	2014	10.1626/pps.17.253
		Changes in seed growth, levels and distribution of flavonoids during tartary buckwheat seed development	Song C, et al.	2016	10.1080/1343943X.2016.1207485
	Seedling development (1)	Varietal Difference in Early Vegetative Growth during Seedling Stage in Soybean	Fatichin, et al.	2013	10.1626/pps.16.77
	Spike development period (1)	Factors in the Reduction in Grain Number in Winter Wheat by Early-Sowing in Yamaguchi	Zhang L, et al.	2007	10.1626/pps.10.189
	Tassel development (2)	Barrenness and Changes in Tassel Development and Flowering Habit of Hybrid Maize Associated with Low Air Temperatures	Hayashi T, et al.	2015	10.1626/pps.18.93
		Varietal difference in the effects of low temperature on tassel development in hybrid maize	Hayashi T.	2016	10.1080/1343943X.2015.1133236

Diaheliotropic leaf movement (1)		Transpiration and Leaf Movement of Cotton Cultivars Grown in the Field under Arid Conditions	Wang C, et al.	2004	10.1626/pps.7.266
Difference / Variation (22)	Cultivar difference (6)	Proteins and Carbohydrates in Developing Rice Panicles with Different Numbers of Spikelets: Cultivar difference and the effect of nitrogen topdressing	Ding Y, et al.	2004	10.1626/pps.7.16
		Drought Tolerance Characteristics of Brazilian Soybean Cultivars: Evaluation and characterization of drought tolerance of various Brazilian soybean cultivars in the field	Oya T, et al.	2004	10.1626/pps.7.129
		Correlation between Yielding Ability and Dry Matter Productivity during Initial Seed Filling Stage in Various Soybean Genotypes	Shiraiwa T, et al.	2004	10.1626/pps.7.138
		Influence of Rootstock Type on the Agronomic Characteristics of Two Grape ( <i>Vitis vinifera</i> L.) Cultivars Grown in the Northwestern Iberian Peninsula	Santiago JL, et al.	2007	10.1626/pps.10.473
		Effects of early planting and cultivars on the yield and agronomic traits of soybeans grown in southwestern Japan	Matsuo N, et al.	2016	10.1080/1343943X.2016.1155417
		Plant development and yield components under a tropical environment in soybean cultivars with temperate and tropical origins	Saryoko A, et al.	2017	10.1080/1343943X.2017.1356203
		Cultivar variation (1)	Rice Cultivar Variation in the Growth Response to Inoculation of Free-Living Rhizo bacteria	Alam MS, et al.	2003
	Interspecific difference (3)	Growth of Roots Emerged from Excised Phytomers of Three Gramineous Species under a Low Osmotic Potential	Matsuura A, et al.	2000	10.1626/pps.3.55
		Differences in Vegetative Growth Response to Soil Flooding between Common and Tartary Buckwheat	Matsuura H, et al.	2005	10.1626/pps.8.525
		Differences in the Vegetative Growth between Common and Tartary Buckwheat in Saline Hydroponic Culture	Matsuura H, et al.	2005	10.1626/pps.8.533
	Varietal difference (11)	Varietal Differences in the Survival Rate of Sprouting Rice Seed ( <i>Oryza sativa</i> L.) under Highly Reduced Soil Conditions	Saka N, et al.	1999	10.1626/pps.2.136
		Factors Relating to Seedling Emergence in Spring Wheat	Ueno K, et al.	1999	10.1626/pps.2.235
		Varietal Differences in Seedling Traits under the Low Dissolved Oxygen Level in Water-Seeded Rice	Won JG, et al.	2000	10.1626/pps.3.375
		Effects of Low Temperature and Shading during Flowering on the Yield Components in Soybeans	Kurosaki H, et al.	2003	10.1626/pps.6.17
		Correlation between Growth Inhibitory Exhibition and Suspected Allelochemicals (Phenolic Compounds) in the Extract of Alfalfa ( <i>Medicago sativa</i> L.)	Xuan TD, et al.	2003	10.1626/pps.6.165
		Pod Dehiscence in Soybean: Assessing Methods and Varietal Difference	Romkaew J, et al.	2006	10.1626/pps.9.373
		Varietal Differences of Flood Tolerance during Germination and Selection of the Tolerant Lines in Common Buckwheat	Sakata K, et al.	2006	10.1626/pps.9.395
		Varietal Difference in the Occurrence of Milky White Kernels in Response to Assimilate Supply in Rice Plants ( <i>Oryza sativa</i> L.)	Tsukaguchi T, et al.	2011	10.1626/pps.14.111
		Varietal Range in Transpiration Conductance of Flowering Rice Panicle and Its Impact on Panicle Temperature	Fukuoka M, et al.	2012	10.1626/pps.15.258
		Varietal Difference in the Occurrence of Delayed Stem Senescence and Cytokinin Level in the Xylem Exudate in Soybeans	Isobe K, et al.	2015	10.1626/pps.18.356
		Comparison of ratoon yield under high-level cutting in two varieties of forage sugarcane, KRf093-1, and Shimanoushie	Sakaigaichi T, et al.	2017	10.1080/1343943X.2017.1283239
	Vertical and diurnal variations (1)	Temporal and Vertical Variations in Photosynthetic Drivers in Mangrove Canopies, Okinawa, Japan	Al-Saidi A, et al.	2009	10.1626/pps.12.336
Differentiation (6)	Differentiation (1)	Evaluation of Cultivar Differences in Preharvest Sprouting of Common Buckwheat ( <i>Fagopyrum esculentum</i> Moench)	Hara T, et al.	2008	10.1626/pps.11.82
	Differentiation position (1)	Position and Development of Differentiated Lateral Buds in Sago Palm ( <i>Metroxylon sagu</i> Rottb.)	Nabeya K, et al.	2015	10.1626/pps.18.435
	Floral differentiation (1)	Differentiation and Development of Floral Organs at Each Node and Raceme Order in an Indeterminate Type of Soybean	Saitoh K, et al.	1999	10.1626/pps.2.47

Differentiation (continued)	Spikelet differentiation (2)	Effects of Non-Structural Carbohydrates on Spikelet Differentiation in Rice	Kobayasi K, et al.	2001	10.1626/pps.4.9
		Relationship between Dry Weight at Heading and the Number of Spikelets on Individual Rice Tillers	Shiratsuchi H, et al.	2007	10.1626/pps.10.430
	Differentiated spikelet (1)	Response of Spikelet Number per Panicle in Rice Cultivars to Three Transplanting Densities	Zhang B, et al.	2010	10.1626/pps.13.279
Digestion (1)	Enzyme digestion (1)	Optical Microscopy and Scanning Electron Microscopy on the Surface of Rice Callus after Treatment with Cell Wall Degrading Enzymes	Sato T, et al.	2001	10.1626/pps.4.145
Distribution (14)	Distribution of [ <sup>14</sup> C]-labeled sucrose (1)	Effects of Epibrassinolide on Sugar Transport and Allocation to the Epicotyl in Cucumber Seedlings	Nakajima N, et al.	1999	10.1626/pps.2.165
	Distribution of protein (1)	Analysis of Storage Protein Distribution in Rice Grain of Seed-Protein Mutant Cultivars by Immunofluorescence Microscopy	Ohdaira Y, et al.	2011	10.1626/pps.14.219
	Asymmetric distribution (2)	Acetylcholine as a Signaling System to Environmental Stimuli in Plants. III. Asymmetric solute distribution controlled by ACh in gravistimulated maize seedlings	Momonoki YS, et al.	1998	10.1626/pps.1.83
		Gravitropic Response of Acetylcholinesterase and IAA-Inositol Synthase in Lazy Rice	Momonoki YS, et al.	2000	10.1626/pps.3.17
	Dry matter distribution (1)	Effects of Paclo butrazol on Dry Matter Distribution and Yield in Peanut	Senoo S, et al.	2003	10.1626/pps.6.90
	Geographic distribution (1)	Genetic Variation of <i>Zoysia</i> as Revealed by Random Amplified Polymorphic DNA (RAPD) and Isozyme Pattern	Weng JH, et al.	2007	10.1626/pps.10.80
	Hardness distribution (1)	Hardness Distribution and Endosperm Structure on Polishing Characteristics of Brewer's Rice Kernels	Tamaki M, et al.	2007	10.1626/pps.10.481
	Nitrogen redistribution (2)	Relation of Leaf Nitrogen Content and Other Traits with Seed Yield of Soybean	Shibles R, et al.	1998	10.1626/pps.1.3
		Varietal Difference in Nitrogen Redistribution from Leaves and Its Contribution to Seed Yield in Soybean	Zhao X, et al.	2014	10.1626/pps.17.103
	Root distribution (4)	The Distribution of Wheat and Maize Roots as Influenced by Biopores in a Subsoil of the Kanto Loam Type	Nakamoto T.	2000	10.1626/pps.3.140
		Fractal and Multifractal Analysis of Cassava Root System Grown by the Root-Box Method	Izumi Y, et al.	2002	10.1626/pps.5.146
		Crop Production in Successive Wheat-Soybean Rotation with No-Tillage Practice in Relation to the Root System Development	Izumi Y, et al.	2004	10.1626/pps.7.329
		Water-Extraction by Split-Roots of Sesbania and Pigeon Pea Exposed to Spatially Heterogeneous Distribution of Soil Water	Sekiya N, et al.	2006	10.1626/pps.9.191
		Deep Rooting in Winter Wheat : Rooting Nodes of Deep Roots in Two Cultivars with Deep and Shallow Root Systems	Araki H, et al.	2001	10.1626/pps.4.215
Diurnal (5)	Diurnal change (3)	Diurnal Changes in Photosynthesis in Sugarcane Leaves. I. Carbon dioxide exchange rate, photosynthetic enzyme activities and metabolite levels relating to the C <sub>4</sub> pathway and the Calvin cycle	Du Y-C, et al.	2000	10.1626/pps.3.3
		Diurnal Changes in Photosynthesis in Sugarcane Leaves. II. Enzyme activities and metabolite levels relating to sucrose and starch metabolism	Du Y-C, et al.	2000	10.1626/pps.3.9
		Diurnal and Phenological Changes in the Rate of Nitrogen Transportation Monitored by Bleeding in Field-Grown Rice Plants ( <i>Oryza sativa</i> L.)	Sakaigaichi T, et al.	2007	10.1626/pps.10.270
	Diurnal fluctuation (1)	Relationship between Ethylene Evolution and Sucrose Content in Excised Leaf Blades of Rice	Kobayashi H, et al.	2000	10.1626/pps.3.398
	Vertical and diurnal variations (1)	Temporal and Vertical Variations in Photosynthetic Drivers in Mangrove Canopies, Okinawa, Japan	Al-Saidi A, et al.	2009	10.1626/pps.12.336
Domestication (1)		Studies on Agronomic Traits of African Rice ( <i>Oryza glaberrima</i> Steud.). IV. Changes In growth, dry matter productivity and yielding ability related to domestication from wild to cultivated form	Sumi A, et al.	1998	10.1626/pps.1.199
Dormancy (5)	Dormancy (2)	Development of Rice "Seed-Mats" Consisting of Hardened Seeds with a Cover of Soil for the Rice Transplanter	Shiratsuchi H, et al.	2008	10.1626/pps.11.108
		Breaking the dormancy of rice seeds with various dormancy levels using steam and high temperature treatments in a steam nursery cabinet	Shiratsuchi H, et al.	2017	10.1080/1343943X.2017.1289067

Dormancy (continued)	Breaking dormancy (1)	Breaking the dormancy of rice seeds with various dormancy levels using steam and high temperature treatments in a steam nursery cabinet	Shiratsuchi H, et al.	2017	10.1080/1343943X.2017.1289067
	Seed dormancy (1)	Evaluation of Cultivar Differences in Preharvest Sprouting of Common Buckwheat ( <i>Fagopyrum esculentum</i> Moench)	Hara T, et al.	2008	10.1626/pps.11.82
	Tiller bud dormancy (1)	Tillering Behavior of the Rice <i>fine culm 1</i> Mutant	Goto Y, et al.	2005	10.1626/pps.8.68
Dry matter (55)	Dry matter (11)	Physio-morphological Studies of F <sub>1</sub> Hybrids in Rice ( <i>Oryza sativa</i> L.): Photosynthetic ability and yield	Khan MNA, et al.	1998	10.1626/pps.1.233
		Effects of Temperature on Growth and Dry Matter Accumulation in Mulberry Saplings	Fukui K.	2000	10.1626/pps.3.404
		Physio-Morphological Characters of F <sub>1</sub> Hybrids of Rice ( <i>Oryza sativa</i> L.) in Japonica-Indica Crosses. II. Heterosis for leaf area and dry matter accumulation	Sarker MAZ, et al.	2001	10.1626/pps.4.202
		Effect of Nitrogen Fertilization on Photosynthetic Characters and Dry Matter Production in F <sub>1</sub> Hybrids of Rice ( <i>Oryza sativa</i> L.)	Sarker MAZ, et al.	2002	10.1626/pps.5.131
		Agronomic Performance of F <sub>1</sub> Hybrids of Rice ( <i>Oryza sativa</i> L.) in Japonica-Indica Crosses: Heterosis for and relationship between grain yield and related character	Murayama S, et al.	2002	10.1626/pps.5.203
		Simulating Organ Growth in Wheat Based on the Organ-Weight Fraction Concept	Cao X, et al.	2002	10.1626/pps.5.248
		Sterility of Thermo-Sensitive Genic Male Sterile Line, Heterosis for Grain Yield and Related Characters in F <sub>1</sub> Hybrid Rice ( <i>Oryza sativa</i> L.)	Pham VC, et al.	2004	10.1626/pps.7.22
		The Relationship between Dry Matter Increase of Seed and Shoot during the Seed-Filling Period in Three Kinds of Soybeans with Different Growth Habits Subjected to Shading and Thinning	Kakiuchi J, et al.	2006	10.1626/pps.9.20
		A Quantitative Knowledge-based Model for Designing Suitable Growth Dynamics in Rice	Yan D, et al.	2006	10.1626/pps.9.93
		Influence of Temperature Shift after Flowering on Dry Matter Partitioning in Two Cultivars of Snap Bean ( <i>Phaseolus vulgaris</i> ) that Differ in Heat Tolerance	Omae H, et al.	2007	10.1626/pps.10.14
		Relationship between Phosphorus Accumulation and Dry Matter Production in Soybeans	Kakiuchi J, et al.	2015	10.1626/pps.18.344
	Dry matter accumulation (3)	Effect of Top-dressing and Planting Density on the Number of Spikelets and Yield of Rice Cultivated with Nitrogen-free Basal Dressing	Truong TH, et al.	1998	10.1626/pps.1.191
		Genotypic Differences in Dry Matter Accumulation, Nitrogen Use Efficiency and Harvest Index in Recombinant Inbred Lines of Rice under Hydroponic Culture	Ju J, et al.	2009	10.1626/pps.12.208
		Effects of supplemental irrigation based on soil moisture levels on photosynthesis, dry matter accumulation, and remobilization in winter wheat ( <i>Triticum aestivum</i> L.) cultivars	Meng MM, et al.	2017	10.1080/1343943X.2017.1302307
	Dry matter accumulation pattern (1)	Effects of Harvest Time on Shoot Biomass and Yield of Turmeric ( <i>Curcuma longa</i> L.) in Okinawa, Japan	Hossain MA.	2010	10.1626/pps.13.97
	Dry matter allocation (1)	Growth, Yield and Photosynthetic Activity of <i>Vigna radiata</i> L. Grown at Different Temperature and Light Levels	Karim MA, et al.	2003	10.1626/pps.6.43
	Dry matter distribution (1)	Effects of Paclobutrazol on Dry Matter Distribution and Yield in Peanut	Senoo S, et al.	2003	10.1626/pps.6.90
	Dry matter partitioning (3)	Characterization of Vegetative Growth of a Supermodulating Soybean Genotype, Sakukei 4	Matsunami T, et al.	2004	10.1626/pps.7.165
		Dry-Matter Partitioning and Accumulation of Carbon and Nitrogen during Ripening in a Female-Sterile Line of Rice	Kato M, et al.	2006	10.1626/pps.9.185
		Dry Matter Partitioning to Stem at Full Maturity Affects Stem Desiccation and Combine Harvest Maturity in Soybeans	Tanaka Y, et al.	2010	10.1626/pps.13.331

Dry matter (continued)	Dry matter production (24)	Effects of Pre-Flowering Soil Moisture Deficits on Dry Matter Production and Ecophysiological Characteristics in Soybean Plants under Well Irrigated Conditions during Grain Filling	Hirasawa T, et al.	1998	10.1626/pps .1.8
		Studies on Dry Matter Production and Efficiency for Solar Energy Utilization in <i>Bupleurum falcatum</i> L. at Different Plant Ages	Shon TK, et al.	1998	10.1626/pps .1.113
		Studies on the Effect of the Relative Humidity of the Atmosphere on the Growth and Physiology of Rice Plants: Effects of relative humidity during the light and dark periods on the growth	Hirai G, et al.	2000	10.1626/pps .3.129
		Effect of Soil Compaction on Dry Matter Production and Water Use of Rice ( <i>Oryza sativa</i> L.) under Water Deficit Stress during the Reproductive Stage	Kobata T, et al.	2000	10.1626/pps .3.306
		Effects of Non-Structural Carbohydrates on Spikelet Differentiation in Rice	Kobayasi K, et al.	2001	10.1626/pps .4.9
		Effects of Dry Matter Production, Translocation of Nonstructural Carbohydrates and Nitrogen Application on Grain Filling in Rice Cultivar Takanari, a Cultivar Bearing a Large Number of Spikelets	Nagata K, et al.	2001	10.1626/pps .4.173
		Effects of Flag Leaves and Panicles on Light Interception and Canopy Photosynthesis in High-Yielding Rice Cultivars	Saitoh K, et al.	2002	10.1626/pps .5.275
		Contribution of Sink and Source Sizes to Yield Variation among Rice Cultivars	Lubis I, et al.	2003	10.1626/pps .6.119
		Effects of Soil Moisture Depletion for One Month before Flowering on Dry Matter Production and Ecophysiological Characteristics of Wheat Plants in Wet Soil during Grain Filling	Nakamura E, et al.	2003	10.1626/pps .6.195
		Effects of a Reduction in Soil Moisture from One Month before Flowering through Ripening on Dry Matter Production and Ecophysiological Characteristics of Wheat Plants	Nakagami K, et al.	2004	10.1626/pps .7.143
		Analysis of the Dry Matter Production Process Related to Yield and Yield Components of Rice Plants Grown under the Practice of Nitrogen-Free Basal Dressing Accompanied with Sparse Planting Density	Pham QD, et al.	2004	10.1626/pps .7.155
		Photosynthesis and Dry-Matter Production during Ripening Stage in a Female-Sterile Line of Rice	Kato M, et al.	2004	10.1626/pps .7.184
		Seedling Growth and Dry-Matter Production under Drained Conditions in Rice Direct-Sown into Puddled and Leveled Soil	Sato T, et al.	2005	10.1626/pps .8.209
		Effects of Soil Moisture Conditions before Heading on Growth of Wheat Plants under Drought Conditions in the Ripening Stage: Insufficient Soil Moisture Conditions before Heading Render Wheat Plants More Resistant to Drought during Ripening	Saidi A, et al.	2008	10.1626/pps .11.403
		Comparison of Growth and Grain Yield of Spring Wheat in Lhasa, the Tibetan Plateau, with those in Sapporo, Japan	Fujimura S, et al.	2009	10.1626/pps .12.116
		Performance of a High-Yielding Modern Rice Cultivar Takanari and Several Old and New Cultivars Grown with and without Chemical Fertilizer in a Submerged Paddy Field	Tayloran RD, et al.	2009	10.1626/pps .12.365
		Effects of Low Root Temperature on Dry Matter Production and Root Water Uptake in Rice Plants	Nagasuga K, et al.	2011	10.1626/pps .14.22
		Root Development, Water Uptake, and Shoot Dry Matter Production under Water Deficit Conditions in Two CSSLs of Rice: Functional Roles of Root Plasticity	Kano-Nakata M, et al.	2011	10.1626/pps .14.307
		Effects of CO <sub>2</sub> Increase on Wheat Growth and Yield under Different Atmospheric Pressures and Their Interaction with Temperature	Fujimura S, et al.	2012	10.1626/pps .15.118
		Genetic Variations in Dry Matter Production, Nitrogen Uptake, and Nitrogen Use Efficiency in the AA Genome <i>Oryza</i> Species Grown under Different Nitrogen Conditions	Hamaoka N, et al.	2013	10.1626/pps .16.107
		Effect of Fertilizer and Fixed Nitrogen on the Water Use Efficiency of Genge ( <i>Astragalus sinicus</i> L.)	Sumi A, et al.	2015	10.1626/pps .18.104
		Yield and dry matter productivity of Japanese and US soybean cultivars	Kawasaki Y, et al.	2016	10.1080/1343943X.2015.1133235

Dry matter (continued)	Dry matter production (continued)	Drought-induced root plasticity of two upland NERICA varieties under conditions with contrasting soil depth characteristics	Menge DM, et al.	2016	10.1080/1343943X.2016.1146908
		Differences in dry matter production, grain production, and photosynthetic rate in barley cultivars under long-term salinity	Hirasawa T, et al.	2017	10.1080/1343943X.2017.1343647
	Dry matter productivity (3)	Studies on Agronomic Traits of African Rice ( <i>Oryza glaberrima</i> Steud.). IV. Changes in growth, dry matter productivity and yielding ability related to domestication from wild to cultivated form	Sumi A, et al.	1998	10.1626/pps.1.199
		Dry Matter Productivity and Overwintering Ability of the Dwarf and Normal N apiergrasses as Affected by the Planting Density and Cutting Frequency	Mukhtar M, et al.	2003	10.1626/pps.6.65
		Correlation between Yielding Ability and Dry Matter Productivity during Initial Seed Filling Stage in Various Soybean Genotypes	Shiraiwa T, et al.	2004	10.1626/pps.7.138
	Dry matter translocation (1)	Effects of Harvest Time on Shoot Biomass and Yield of Turmeric ( <i>Curcuma longa</i> L.) in Okinawa, Japan	Hossain MA.	2010	10.1626/pps.13.97
	Dry matter yield (5)	Effects of Cutting Interval and Cutting Height on Dry Matter Yield and Overwintering Ability at the Established Year in <i>Pennisetum</i> Species	Wadi A, et al.	2004	10.1626/pps.7.88
		Effects of Cutting Height and Trampling over Stubbles of the First Crop on Dry Matter Yield in Twice Harvesting of Forage Rice	Nakano H, et al.	2009	10.1626/pps.12.124
		Effects of Planting Time and Nitrogen Application on Dry Matter Yield of the Forage Rice Cultivar Tachiaoba in Southwestern Japan	Nakano H, et al.	2009	10.1626/pps.12.351
		Effect of Stubble Shaving after High-Level Cutting on the Growth and Yield of Forage Sugarcane, KRfo93-1, under Multiple Ratooning Cultivation	Sakaigaichi T, et al.	2013	10.1626/pps.16.183
		Comparison of ratoon yield under high-level cutting in two varieties of forage sugarcane, KRfo93-1, and Shimanoushie	Sakaigaichi T, et al.	2017	10.1080/1343943X.2017.1283239
	Grain dry matter (1)	Liquid Culturing of Detached Panicles of Rice: Cooled Culture Solutions Extend the Period of Growth	Kobata T, et al.	2001	10.1626/pps.4.280
	Post-silking dry matter accumulation (1)	Maintenance of Crop Growth through 30 Days after Silking Contributes to Achieving Super-High Yield of Spring Maize	Tao H, et al.	2014	10.1626/pps.17.268
Dwarf (2)	Dwarfing (1)	Effects of Reduction in Plant Height Induced by Chlormequat on Radiation Interception and Radiation-Use Efficiency in Wheat in Southwest Japan	Toyota M, et al.	2010	10.1626/pps.13.67
	Dwarfness (1)	Effect of Dwarfing Induced by Uniconazole-P on Snow Tolerance of the Faba Bean ( <i>Vicia faba</i> L.)	Fukuta N, et al.	2001	10.1626/pps.4.189
Edge effect (1)		Effects of Partial Harvesting on Napier Grass: Reduced Seasonal Variability in Feedstock Supply and Increased Biomass Yield	Sekiya N, et al.	2015	10.1626/pps.18.99
Eemission (1)	Ammonia emission (1)	Ammonia Emission from Leaves of Different Rice ( <i>Oryza sativa</i> L.) Cultivars	Kumagai E, et al.	2011	10.1626/pps.14.249
Efficiency (39)	Efficiency for solar energy utilization (1)	Studies on Dry Matter Production and Efficiency for Solar Energy Utilization in <i>Bupleurum falcatum</i> L. at Different Plant Ages	Shon TK, et al.	1998	10.1626/pps.1.113
	Growth efficiency (2)	Effects of Dark Respiration on Dry Matter Production of Field Grown Rice Stand: Comparison of growth efficiencies in 1991 and 1992	Saitoh K, et al.	1998	10.1626/pps.1.106
		Effects of Nitrogen Fertilization on Dark-Respiration and Growth Efficiency of Field-Grown Rice Plants	Saitoh K, et al.	2000	10.1626/pps.3.238
	Nitrogen efficiency (1)	Responses of Seed Yield and Quality to Nitrogen Application Levels in Two Oilseed Rape ( <i>Brassica napus</i> L.) Varieties Differing in Nitrogen Efficiency	Zhang ZH, et al.	2012	10.1626/pps.15.265
	Nitrogen use efficiency (NUE) (6)	Effects of Alternate Furrow Irrigation and Nitrogen Application Rates on Yield and Water- and Nitrogen-Use Efficiency of Winter Wheat ( <i>Triticum aestivum</i> L.)	Sepaskhah AR, et al.	2008	10.1626/pps.11.250
		Genetic Variations in Dry Matter Production, Nitrogen Uptake, and Nitrogen Use Efficiency in the AA Genome Oryza Species Grown under Different Nitrogen Conditions	Hamaoka N, et al.	2013	10.1626/pps.16.107
Genotypic Variation in Nitrogen Uptake during Early Growth among Rice Cultivars under Different Soil Moisture Regimes		Matsunami M, et al.	2013	10.1626/pps.16.238	



Efficiency (continued)	Nitrogen use efficiency (NUE) (continued)	Comparison of Five Nitrogen Dressing Methods to Optimize Rice Growth	Chen QC, et al.	2014	10.1626/pps .17.66
		Characterizing N uptake and use efficiency in rice as influenced by environments	Jiang P, et al.	2016	10.1080/13 43943X.20 15.1128103
		Photosynthetic response and nitrogen use efficiency of sugarcane under drought stress conditions with different nitrogen application levels	Dinh TH, et al.	2017	10.1080/13 43943X.20 17.1371570
	Nitrogen use efficiency (NUE) for dry matter accumulation (1)	Genotypic Differences in Dry Matter Accumulation, Nitrogen Use Efficiency and Harvest Index in Recombinant Inbred Lines of Rice under Hydroponic Culture	Ju J, et al.	2009	10.1626/pps .12.208
	Phosphorus use efficiency (1)	Effects of Seed P-enrichment and Localized P-fertilizer Application on Soil-grown Wheat	Sekiya N, et al.	2013	10.1626/pps .16.199
	Photosynthetic nitrogen use efficiency (2)	Variations in structural, biochemical, and physiological traits of photosynthesis and resource use efficiency in Amaranthus species (NAD-ME-type C <sub>4</sub> )	Tsutsumi N, et al.	2017	10.1080/13 43943X.20 17.1320948
		Variations in physiological, biochemical, and structural traits of photosynthesis and resource use efficiency in maize and teosintes (NADP-ME-type C <sub>4</sub> )	Yabiku T, et al.	2017	10.1080/13 43943X.20 17.1398050
	Photosynthetic water use efficiency (2)	Variations in structural, biochemical, and physiological traits of photosynthesis and resource use efficiency in Amaranthus species (NAD-ME-type C <sub>4</sub> )	Tsutsumi N, et al.	2017	10.1080/13 43943X.20 17.1320948
		Variations in physiological, biochemical, and structural traits of photosynthesis and resource use efficiency in maize and teosintes (NADP-ME-type C <sub>4</sub> )	Yabiku T, et al.	2017	10.1080/13 43943X.20 17.1398050
	Physiological efficiency (1)	Characterizing N uptake and use efficiency in rice as influenced by environments	Jiang P, et al.	2016	10.1080/13 43943X.20 15.1128103
	Potassium absorption efficiency (1)	Differential Responses in Potassium Absorption and Use Efficiencies in the Halophytes <i>Catapodium rigidum</i> and <i>Hordeum maritimum</i> to Various Potassium Concentrations in the Medium	Hafsi C, et al.	2011	10.1626/pps .14.135
	Potassium use efficiency (1)	Differential Responses in Potassium Absorption and Use Efficiencies in the Halophytes <i>Catapodium rigidum</i> and <i>Hordeum maritimum</i> to Various Potassium Concentrations in the Medium	Hafsi C, et al.	2011	10.1626/pps .14.135
	Radiation use efficiency (RUE) (4)	Effects of Reduction in Plant Height Induced by Chlormequat on Radiation Interception and Radiation-Use Efficiency in Wheat in Southwest Japan	Toyota M, et al.	2010	10.1626/pps .13.67
		Yield and dry matter productivity of Japanese and US soybean cultivars	Kawasaki Y, et al.	2016	10.1080/13 43943X.20 15.1133235
		An application of digital imagery analysis to understand the effect of N application on light interception, radiation use efficiency, and grain yield of maize under various agro-environments in Northern Mozambique	Tsujimoto Y, et al.	2017	10.1080/13 43943X.20 16.1240013
		A high seed yield and associated attributes of dry matter production achieved by recent Japanese soybean cultivars	Maitree L, et al.	2017	10.1080/13 43943X.20 17.1294463
Water use efficiency (16)	Growth Responses of Drought Resistant Rice Cultivars to Soil Compaction under Irrigated and Succeeding Nonirrigated Conditions during the Vegetative Stage	Hoque M, et al.	1998	10.1626/pps .1.183	
	Effect of Soil Compaction on Dry Matter Production and Water Use of Rice ( <i>Oryza sativa</i> L.) under Water Deficit Stress during the Reproductive Stage	Kobata T, et al.	2000	10.1626/pps .3.306	
	Effects of Water-Saving Irrigation and Nitrogen Fertilization on Yield and Yield Components of Rice ( <i>Oryza sativa</i> L.)	Pirmoradian N, et al.	2004	10.1626/pps .7.337	
	Water Saving in Rice-Wheat Systems	Humphreys E, et al.	2005	10.1626/pps .8.242	
	Alternate Furrow Irrigation with Different Irrigation Intervals for Maize ( <i>Zea mays</i> L.)	Sepaskhah AR, et al.	2005	10.1626/pps .8.592	
	Growth and Water Use Response of Doubled-Haploid Rice Lines to Drought and Rewatering during the Vegetative Stage	Siopongco JDLC, et al.	2006	10.1626/pps .9.141	
	Effect of Planting Density on Grain Yield and Water Productivity of Rice ( <i>Oryza sativa</i> L.) Grown in Flooded and Non-flooded Fields in Japan	Hayashi S, et al.	2006	10.1626/pps .9.298	
	Effects of Alternate Furrow Irrigation with Supplemental Every-Furrow Irrigation at Different Growth Stages on the Yield of Maize ( <i>Zea mays</i> L.)	Sepaskhah AR, et al.	2006	10.1626/pps .9.415	

Efficiency (continued)	Water use efficiency (continued)	Growth of Three Rice ( <i>Oryza sativa</i> L.) Cultivars under Upland Conditions with Different Levels of Water Supply. 1. Nitrogen Content and Dry Matter Production	Kato Y, et al.	2006	10.1626/pps.9.422
		Effects of Irrigation and Straw Mulching on Microclimate Characteristics and Water Use Efficiency of Winter Wheat in North China	Li Q, et al.	2008	10.1626/pps.11.161
		Effects of Alternate Furrow Irrigation and Nitrogen Application Rates on Yield and Water- and Nitrogen-Use Efficiency of Winter Wheat ( <i>Triticum aestivum</i> L.)	Sepaskhah AR, et al.	2008	10.1626/pps.11.250
		Genotypic Variation in Biomass Production at the Early Vegetative Stage among Rice Cultivars Subjected to Deficient Soil Moisture Regimes and Its Association with Water Uptake Capacity	Matsunami M, et al.	2012	10.1626/pps.15.82
		Role of Canopy Coverage in Water Use Efficiency of Lowland Rice in Early Growth Period in Semi-Arid Region	Suzuki T, et al.	2013	10.1626/pps.16.12
		Effect of Fertilizer and Fixed Nitrogen on the Water Use Efficiency of Genge ( <i>Astragalus sinicus</i> L.)	Sumi A, et al.	2015	10.1626/pps.18.104
		Utilizing rainfall and alternate wetting and drying irrigation for high water productivity in irrigated lowland paddy rice in southern Taiwan	Pascual VJ, et al.	2017	10.1080/1343943X.2016.1242373
		Yield response, water productivity, and seasonal water production functions for maize under deficit irrigation water management in southern Taiwan	Greaves GE, et al.	2017	10.1080/1343943X.2017.1365613
		Electrolyte leakage (2)		Effects of Silicon on Tolerance to Water Deficit and Heat Stress in Rice Plants ( <i>Oryza sativa</i> L.), Monitored by Electrolyte Leakage	Agarie S, et al.
Improving the Field Emergence Performance of Super Sweet Corn by Sand Priming	Zhao G, et al.			2009	10.1626/pps.12.359
Elongation (24)	Elongation (1)	Sugar Accumulation along the Seminal Root Axis, as Affected by Osmotic Stress in Maize: A Possible Physiological Basis for Plastic Lateral Root Development	Ogawa A, et al.	2005	10.1626/pps.8.173
	Elongation ability (1)	Elongation Ability of African Floating Rice ( <i>Oryza glaberrima</i> Steud.)	Mochizuki T, et al.	1998	10.1626/pps.1.134
	Elongation rate (1)	Root Osmotic Adjustment under Osmotic Stress in Maize Seedlings. 1. Transient Change of Growth and Water Relations in Roots in Response to Osmotic Stress	Ogawa A, et al.	2006	10.1626/pps.9.27
	Elongating zone (1)	Root Osmotic Adjustment under Osmotic Stress in Maize Seedlings. 1. Transient Change of Growth and Water Relations in Roots in Response to Osmotic Stress	Ogawa A, et al.	2006	10.1626/pps.9.27
	Initiation (1)	Sugar Accumulation along the Seminal Root Axis, as Affected by Osmotic Stress in Maize: A Possible Physiological Basis for Plastic Lateral Root Development	Ogawa A, et al.	2005	10.1626/pps.8.173
	Cell division and elongation (1)	Effects of anti-auxins on secondary aerenchyma formation in flooded soybean hypocotyls	Shimamura S, et al.	2016	10.1080/1343943X.2015.1128101
	Cell elongation (2)	Changes in Cell Wall-Bound Phenolic Acids in the Internodes of Submerged Floating Rice	Azuma T, et al.	2005	10.1626/pps.8.441
		Hydraulic Conductivity and Aquaporins of Cortical Cells in Gravitropically Bending Roots of <i>Pisum sativum</i> L.	Miyamoto N, et al.	2005	10.1626/pps.8.515
	Coleoptile elongation (1)	Expression of $\alpha$ -Amylase Isoforms and the <i>RAmylA</i> Gene in Rice ( <i>Oryza sativa</i> L.) during Seed Germination, and its Relationship with Coleoptile Length in Submerged Soil	Huang J, et al.	2000	10.1626/pps.3.32
	Direction of root elongation (2)	Which Roots Penetrate the Deepest in Rice and Maize Root Systems?	Araki H, et al.	2000	10.1626/pps.3.281
		Deep Rooting in Winter Wheat: Rooting Nodes of Deep Roots in Two Cultivars with Deep and Shallow Root Systems	Araki H, et al.	2001	10.1626/pps.4.215
	Duration of elongation (1)	Effect of the Interaction between Cultural Condition and Genotype on Spike Morphogenesis in Spring Wheat	Itoh H, et al.	1998	10.1626/pps.1.56
	Internode elongation (2)	Patterns of Internode Elongation in Rice Seedlings	Hirao A, et al.	2001	10.1626/pps.4.88
		Cloning of a Cytochrome P450 Gene Induced by Ethylene Treatment in Deepwater Rice ( <i>Oryza sativa</i> L.)	Watanabe H, et al.	2008	10.1626/pps.11.124
	Mesocotyl elongation (1)	Effect of Gibberellin and Uniconazole on Mesocotyl Elongation of Dark-Grown Maize under Different Seeding Depths	Zhao G, et al.	2008	10.1626/pps.11.423

Elongation (continued)	Root elongation (3)	Non-destructive Method for Root Elongation Measurement in Soil Using Acoustic Emission Sensors. I. Vertical measurement of single root elongation	Shimotashiro T, et al.	1998	10.1626/pps.1.25
		Mechanical Stimulus-Sensitive Mutation, <i>rrl3</i> , Affects the Cell Production Process in the Root Meristematic Zone in Rice	Inukai Y, et al.	2003	10.1626/pps.6.265
		Quantitative Analysis of Cell Division and Cell Death in Seminal Root of Rye under Salt Stress	Ogawa A, et al.	2006	10.1626/pps.9.56
	Root elongation rate (1)	Structure and Function of the Root Cap	Iijima M, et al.	2008	10.1626/pps.11.17
	Shoot elongation (1)	Relationship between Shoot Elongation and Dry Matter Weight During Submergence in <i>Oryza sativa</i> L. and <i>O. glaberrima</i> Steud. Rice Cultivars	Kawano N, et al.	2008	10.1626/pps.11.316
	Shoot elongation pattern (1)	Effects of Seed Rhizome Size on Growth and Yield of Turmeric ( <i>Curcuma longa</i> L.)	Hossain A, et al.	2005	10.1626/pps.8.86
	Spike elongation (1)	Analysis of Spike Development of Three Spring Wheat Genotypes under Various Cultural Conditions	Itoh H, et al.	1998	10.1626/pps.1.258
	Unelongated stem (2)	Anatomical Characteristics of the Formation of Crown Root Primordia in Unelongated Stems of Wheat	Nitta Y, et al.	2005	10.1626/pps.8.186
		Relation between Crown Root Primordia Formation and Stem Size in Unelongated Stems of Wheat ( <i>Triticum aestivum</i> L.)	Nitta Y, et al.	2006	10.1626/pps.9.266
Embryo (11)	Embryo size (1)	Effect of 2,4-Dichlorophenoxyacetic Acid on the Efficiency of Wheat Haploid Production by the <i>Hordeum bulbosum</i> Method	Ushiyama T, et al.	2006	10.1626/pps.9.206
	Embryogenic callus (2)	Identification of Callus Induction Potential of 15 Indonesian Rice Genotypes	Carsono N, et al.	2006	10.1626/pps.9.65
		Plant Regeneration Capacity of Calluses Derived from Mature Seed of Five Indonesian Rice Genotypes	Carsono N, et al.	2006	10.1626/pps.9.71
	Direct somatic embryogenesis (2)	Changes in Surface Structure during Direct Somatic Embryogenesis in Rice Scutellum Observed by Scanning Electron Microscopy	Mariani TS, et al.	1998	10.1626/pps.1.223
		Epidermal Cell Wall Biogenesis with Emphasis on Cuticular Layer Formation during Direct Somatic Embryogenesis in Rice	Mariani TS, et al.	1999	10.1626/pps.2.206
	Immature zygotic embryo (1)	Improvement of Direct Somatic Embryogenesis in Rice by Selecting the Optimal Developmental Stage of Explant and Applying Desiccation Treatment	Mariani TS, et al.	2000	10.1626/pps.3.114
	Mature zygotic embryo (1)	Improvement of Direct Somatic Embryogenesis in Rice by Selecting the Optimal Developmental Stage of Explant and Applying Desiccation Treatment	Mariani TS, et al.	2000	10.1626/pps.3.114
	Somatic embryo (2)	Changes in Surface Structure during Direct Somatic Embryogenesis in Rice Scutellum Observed by Scanning Electron Microscopy	Mariani TS, et al.	1998	10.1626/pps.1.223
		Improvement of Direct Somatic Embryogenesis in Rice by Selecting the Optimal Developmental Stage of Explant and Applying Desiccation Treatment	Mariani TS, et al.	2000	10.1626/pps.3.114
	Somatic embryogenesis (2)	Efficient Plant Regeneration in Garlic through Somatic Embryogenesis from Root Tip Explants	Haque MS, et al.	1998	10.1626/pps.1.216
Haploid Plantlet Production through Somatic Embryogenesis in Anther-Derived Callus of <i>Bupleurum falcatum</i>		Shon TK, et al.	2004	10.1626/pps.7.204	
Emergence (13)	Emergence (6)	Factors Relating to Seedling Emergence in Spring Wheat	Ueno K, et al.	1999	10.1626/pps.2.235
		Does Wetting and Redrying the Seed before Sowing Improve Rice Germination and Emergence under Low Soil Moisture Conditions?	Andoh H, et al.	2000	10.1626/pps.3.161
		Effect of Seed Hardening, Wetting and Redrying before Sowing, on Germination and Seedling Emergence of a Japanese Wheat Variety Norin 61 in Desiccated Soil	Andoh H, et al.	2001	10.1626/pps.4.50
		Morphological Characters Related to Varietal Differences in Tolerance to Deep Sowing in Wheat	Matsui T, et al.	2002	10.1626/pps.5.169
		Optimal Planting Depth for Turmeric ( <i>Curcuma longa</i> L.) Cultivation in Dark Red Soil in Okinawa Island, Southern Japan	Ishimine Y, et al.	2003	10.1626/pps.6.83
		Effects of poultry manure on soil solution electrical conductivity and early growth of <i>Monochoria vaginalis</i>	Watanabe H, et al.	2017	10.1080/1343943X.2016.1246064

Emergence (continued)	Emergence depth (1)	Path Analysis of Tiller Density of Winter Wheat Demonstrates the Importance of Practices that Manipulate Clod Size Based on Soil Moisture at Seeding in the Rice-Wheat Cropping System	Inamura T, et al.	2010	10.1626/pps .13.85
	Field emergence performance (1)	Improving the Field Emergence Performance of Super Sweet Corn by Sand Priming	Zhao G, et al.	2009	10.1626/pps .12.359
	Seedling emergence (5)	Differences in the Rate of Seedling Emergence among Rice Cultivars under Low Soil-Moisture Conditions	Shiratsuchi H, et al.	2001	10.1626/pps .4.94
		Seedling Emergence and Establishment under Drained Conditions in Rice Direct-Sown into Puddled and Leveled Soil: Effect of calcium peroxide seed coating and sowing dept	Sato T, et al.	2002	10.1626/pps .5.71
		Growth Enhancement by Drainage during Seedling Establishment in Rice Direct-Sown into Puddled and Leveled Soil: Comparison with seed coating with calcium peroxide	Tsuchiya M, et al.	2004	10.1626/pps .7.324
		Improvement of Soybean Seedling Establishment under a Flooded Condition by Seed Coating with Molybdenum Compounds	Hara Y.	2015	10.1626/pps .18.161
	Improvement of seedling establishment under flood condition by seed coating with molybdenum compounds for wheat and barley	Hara Y.	2016	10.1080/13 43943X.20 15.1128110	
Endodermis (2)	Endodermis (1)	Identification of Casparian Bands in the Mesocotyl and Lower Internodes of Rice ( <i>Oryza sativa</i> L.) Seedlings Using Fluorescence Microscopy	Watanabe H, et al.	2006	10.1626/pps .9.390
	Root endodermis (1)	Root Anatomical Responses to Waterlogging at Seedling Stage of Three Cordage Fiber Crops	Changdee T, et al.	2008	10.1626/pps .11.232
Endoplasmic reticulum (1)		Effects of Nitrogen Application on the Development and Accumulation of Protein Bodies in Developing Rice Seed	Zakaria S, et al.	2000	10.1626/pps .3.84
Endosperm (10)	Endosperm (5)	Electron Microscopy Related to the Reserve Mobilization in Germinating Rice Seed: Decomposition process of protein bodies	Zakaria S, et al.	1999	10.1626/pps .2.100
		Effects of Nitrogen Application on the Development and Accumulation of Protein Bodies in Developing Rice Seed	Zakaria S, et al.	2000	10.1626/pps .3.84
		Morphological Studies on the Mobilization of Reserves in Germinating Rice Seed: Decomposition process of starch granule	Zakaria S, et al.	2000	10.1626/pps .3.152
		Effect of Temperature on the Decomposition of Reserves during Germination and Early Growth of Rice Plants: An electron microscopic study	Zakaria S, et al.	2001	10.1626/pps .4.20
		Effect of High Temperature at Ripening Stage on the Reserve Accumulation in Seed in Some Rice Cultivars	Zakaria S, et al.	2002	10.1626/pps .5.160
	Central line of endosperm (1)	Varietal Differences in Endosperm Cell Morphology of the Non-glutinous Rice ( <i>Oryza sativa</i> L.) Released over the Past 100 Years in Hokkaido, Japan	Uchino H, et al.	2011	10.1626/pps .14.96
	Endosperm morphology (1)	Varietal Differences in Endosperm Cell Morphology of the Non-glutinous Rice ( <i>Oryza sativa</i> L.) Released over the Past 100 Years in Hokkaido, Japan	Uchino H, et al.	2011	10.1626/pps .14.96
	Endosperm structure (2)	Hardness Distribution and Endosperm Structure on Polishing Characteristics of Brewer's Rice Kernels	Tamaki M, et al.	2007	10.1626/pps .10.481
		Varietal Differences in Endosperm Structure Related to High-degree Polishing Properties of "Hattan Varieties" of Rice Suitable for Brewing Original Hiroshima Sake	Tamaki M, et al.	2008	10.1626/pps .11.466
	Nuclear endosperm (1)	Cellularization of the Free Nuclear Endosperm in Rice Caryopsis Revealed by Light and Electron Microscopy	Suzuki K, et al.	2000	10.1626/pps .3.446
Epidermis (6)	Epidermis (2)	Epidermal Cell Wall Biogenesis with Emphasis on Cuticular Layer Formation during Direct Somatic Embryogenesis in Rice	Mariani TS, et al.	1999	10.1626/pps .2.206
		Silica Distribution on the Husk Epidermis at Different Parts of the Panicle in Rice ( <i>Oryza sativa</i> L.) Determined by X-ray Microanalysis	Takahashi N, et al.	2006	10.1626/pps .9.168
	Epidermal bladder cells (2)	Suppression subtractive hybridization library construction and identification of epidermal bladder cell related genes in the common ice plant, <i>Mesembryanthemum crystallinum</i> L.	Roeurn S, et al.	2016	10.1080/13 43943X.20 16.1221320
		MYB and HD-ZIP IV homologs related to trichome formation are involved in epidermal bladder cell development in the halophyte <i>Mesembryanthemum crystallinum</i> L.	Roeurn S, et al.	2017	10.1080/13 43943X.20 17.1279528

Epidermis (continued)	Nucellar epidermis (2)	Changes in NMR Relaxation of Rice Grains, Kernel Quality and Physicochemical Properties in Response to a High Temperature after Flowering in Heat-Tolerant and Heat-Sensitive Rice Cultivars	Tanaka K, et al.	2009	10.1626/pps.12.185
		Differential responses to high temperature during maturation in heat-stress-tolerant cultivars of <i>Japonica</i> rice	Tanamachi K, et al.	2016	10.1080/1343943X.2016.1140007
Establishment (14)	Plant establishment period (1)	The Effect of Fluctuations of Soil Moisture on Root Development during the Establishment Phase of Sweetpotato	Pardales JR Jr, et al.	2000	10.1626/pps.3.134
	Seedling establishment (12)	Rice Direct Seeding Method with Recycled-paper Mulching	Ueno H, et al.	1999	10.1626/pps.2.53
		A Varietal Difference in Coleoptile Growth is Correlated with Seedling Establishment of Direct Seeded Rice in Submerged Field under Low-Temperature Conditions	Ogiwara H, et al.	2001	10.1626/pps.4.166
		Seedling Emergence and Establishment under Drained Conditions in Rice Direct-Sown into Puddled and Leveled Soil: Effect of calcium peroxide seed coating and sowing depth	Sato T, et al.	2002	10.1626/pps.5.71
		Introduction of the Long-Coleoptile Trait to Improve the Establishment of Direct-Seeded Rice in Submerged Fields in Cool Climates	Miura K, et al.	2002	10.1626/pps.5.219
		Growth Enhancement by Drainage during Seedling Establishment in Rice Direct-Sown into Puddled and Leveled Soil: Comparison with seed coating with calcium peroxide	Tsuchiya M, et al.	2004	10.1626/pps.7.324
		Effects of Temperature, Sowing Depth and Soil Hardness on Seedling Establishment and Yield of Cambodian Rice Direct-seeded in Flood Paddy Fields	Ly T, et al.	2007	10.1626/pps.10.129
		Establishment of Rice Seedlings by Direct Sowing of Multiple Seed Pellets on Paddy Soil Covered with Legume Living Mulch	Asagi N, et al.	2008	10.1626/pps.11.361
		$\alpha$ -Amylase Activity and Soluble Sugar Supply from Endosperm in Relation to Varietal Differences in Seedling Establishment under Low-Temperature Conditions in Rice ( <i>Oryza sativa</i> L.)	Ogiwara H, et al.	2010	10.1626/pps.13.321
		Improvement of Rice Seedling Establishment on Sulfate-Applied Submerged Soil by Seed Coating with Poorly Soluble Molybdenum Compounds	Hara Y.	2013	10.1626/pps.16.271
		Improvement of Soybean Seedling Establishment under a Flooded Condition by Seed Coating with Molybdenum Compounds	Hara Y.	2015	10.1626/pps.18.161
		Improvement of seedling establishment under flood condition by seed coating with molybdenum compounds for wheat and barley	Hara Y.	2016	10.1080/1343943X.2015.1128110
		Comparison of the effects of seed coating with tungsten and molybdenum compounds on seedling establishment rates of rice, wheat, barley, and soybean under flooded conditions	Hara Y.	2017	10.1080/1343943X.2017.1360141
		Seedling establishment ratio (1)	Path Analysis of Tiller Density of Winter Wheat Demonstrates the Importance of Practices that Manipulate Clod Size Based on Soil Moisture at Seeding in the Rice-Wheat Cropping System	Inamura T, et al.	2010
Etiolation growth (1)	Nonstructural Carbohydrate Reserves in Roots and the Ability of Temperate Perennial Grasses to Overwinter in Early Growth Stages	Tamura Y, et al.	2001	10.1626/pps.4.56	
Etioplast (1)	Plastid Damage in Photosynthetic Cells of Mizugayatsuri ( <i>Cyperus serotinus</i> ) Leaves Treated with a Pyrazole Herbicide	Ogawa M, et al.	2001	10.1626/pps.4.291	
Evaporation (3)	Evaporation (2)	Water Saving in Rice-Wheat Systems	Humphreys E, et al.	2005	10.1626/pps.8.242
		Soil Management Systems Improve Water Use Efficiency of Rainfed Rice in the Semi-Arid Tropics of Southern Lombok, Eastern Indonesia	Mahrup M, et al.	2005	10.1626/pps.8.342
	Evapotranspiration (1)	Effect of Fertilizer and Fixed Nitrogen on the Water Use Efficiency of Genge ( <i>Astragalus sinicus</i> L.)	Sumi A, et al.	2015	10.1626/pps.18.104
Evolution (1)	Ethylene evolution (1)	Relationship between Ethylene Evolution and Sucrose Content in Excised Leaf Blades of Rice	Kobayashi H, et al.	2000	10.1626/pps.3.398

Exchange (14)	Carbon exchange rate (1)	A Multichannel Automated Chamber System for Continuous Measurement of Carbon Exchange Rate of Rice Canopy	Katsura K, et al.	2006	10.1626/pps.9.152
	CO <sub>2</sub> exchange (1)	Inheritance of C <sub>3</sub> -C <sub>4</sub> Intermediate Photosynthesis in Reciprocal Hybrids between <i>Moricandia arvensis</i> (C <sub>3</sub> -C <sub>4</sub> ) and <i>Brassica oleracea</i> (C <sub>3</sub> ) that Differ in their Genome Constitution	Ueno O, et al.	2007	10.1626/pps.10.68
	CO <sub>2</sub> exchange rate (1)	Physio-morphological Studies of F <sub>1</sub> Hybrids in Rice ( <i>Oryza sativa</i> L.): Photosynthetic ability and yield	Khan MNA, et al.	1998	10.1626/pps.1.233
	Gas exchange (9)	Effects of Nitrogen Application on Dark-Respiration in Different Parts of Rice Seedlings	Saitoh K, et al.	2000	10.1626/pps.3.243
		Gas Exchange through the Slit between the Lemma and the Pale a in the Rice ( <i>Oryza sativa</i> L.) Floret before Anthesis	Matsui T, et al.	2003	10.1626/pps.6.262
		Photosynthetic Recovery of a Perennial Grass <i>Leymus chinensis</i> after Different Periods of Soil Drought	Xu ZZ, et al.	2007	10.1626/pps.10.277
		Gas Exchange Analysis for Estimating Net CO <sub>2</sub> Fixation Capacity of Mangrove ( <i>Rhizophora stylosa</i> ) Forest in the Mouth of River Fukido, Ishigaki Island, Japan	Okimoto Y, et al.	2007	10.1626/pps.10.303
		Effects of Coronatine on Growth, Gas Exchange Traits, Chlorophyll Content, Antioxidant Enzymes and Lipid Peroxidation in Maize ( <i>Zea mays</i> L.) Seedlings under Simulated Drought Stress	Wang B, et al.	2008	10.1626/pps.11.283
		Leaf Growth, Gas Exchange and Chlorophyll Fluorescence Parameters in Response to Different Water Deficits in Wheat Cultivars	Wu X, et al.	2011	10.1626/pps.14.254
		Inclination Angle Affects Ozone Injury in the Flag Leaf of Rice	Kobayakawa H, et al.	2013	10.1626/pps.16.24
		Relation between O <sub>3</sub> -Inhibition of Photosynthesis and Ethylene in Paddy Rice Grown under Different CO <sub>2</sub> Concentrations	Kobayakawa H, et al.	2015	10.1626/pps.18.22
		Exogenous ascorbic acid scarcely ameliorates inhibition of photosynthesis in rice leaves by O <sub>3</sub>	Kobayakawa H, et al.	2017	10.1080/1343943X.2016.1232149
		Gas exchange rate (1)	Mechanism of High Photosynthetic Capacity in BC <sub>2</sub> F <sub>4</sub> Lines Derived from a Cross between <i>Oryza sativa</i> and Wild Relatives <i>O. rufipogon</i>	Masumoto C, et al.	2005
	K <sup>+</sup> /H <sup>+</sup> exchange activity (1)	Difference in Tolerance to Potassium Deficiency between Two Maize Inbred Lines	Minjian C, et al.	2007	10.1626/pps.10.42
Exodermis (2)	Exodermis (1)	Identification of Casparian Bands in the Mesocotyl and Lower Internodes of Rice ( <i>Oryza sativa</i> L.) Seedlings Using Fluorescence Microscopy	Watanabe H, et al.	2006	10.1626/pps.9.390
	Root exodermis (1)	Root Anatomical Responses to Waterlogging at Seedling Stage of Three Cordage Fiber Crops	Changdee T, et al.	2008	10.1626/pps.11.232
Export (1)	Export of carbon (1)	Changes in Photosynthetic Activity and Export of Carbon by Overexpressing a Maize Sucrose-Phosphate Synthase Gene under Elevated CO <sub>2</sub> in Transgenic Rice	Ono K, et al.	2003	10.1626/pps.6.281
Exudation (11)	Exudation (1)	Structure and Function of the Root Cap	Iijima M, et al.	2008	10.1626/pps.11.17
	Exudation rate (3)	Effects of Pre-Flowering Soil Moisture Deficits on Dry Matter Production and Ecophysiological Characteristics in Soybean Plants under Well Irrigated Conditions during Grain Filling	Hirasawa T, et al.	1998	10.1626/pps.1.8
		Analysis of the Factors Causing Differences in the Leaf-Senescence Pattern between Two Soybean Cultivars, Enrei and Tachinagaha: Comparison of root length and exudation rate among grafted plants	Ookawa T, et al.	2001	10.1626/pps.4.3
		Comparison of Nitrogen Uptake, Transpiration Rate and Exudation Rate between Upland NERICAs and Japanese Cultivars	Matsunami M, et al.	2010	10.1626/pps.13.347
	Root extract (1)	Flavonoids in the Extract and Exudate of the Roots of Leguminous Crops	Isobe K, et al.	2001	10.1626/pps.4.278
	Root exudate (4)	Relationship between the Amount of Root Exudate and the Infection Rate of Arbuscular Mycorrhizal Fungi in Gramineous and Leguminous Crops	Isobe K, et al.	1998	10.1626/pps.1.37
		Flavonoids in the Extract and Exudate of the Roots of Leguminous Crops	Isobe K, et al.	2001	10.1626/pps.4.278

Exudation (continued)	Root exudate (continued)	Release Level of Momilactone B from Rice Plants	Kato-Noguchi H, et al.	2004	10.1626/pps .7.189
		Effects of Plant Residue, Root Exudate and Juvenile Plants of Rapeseed ( <i>Brassica napus</i> L.) on the Germination, Growth, Yield, and Quality of Subsequent Crops in Successive and Rotational Cropping Systems	Yasumoto S, et al.	2011	10.1626/pps .14.339
	Root exudation (2)	Functional Role of Mucilage-Border Cells: A Complex Facilitating Protozoan Effects on Plant Growth	Somasundaram S, et al.	2008	10.1626/pps .11.344
		Rhizodeposition of Mucilage, Root Border Cells, Carbon and Water under Combined Soil Physical Stresses in <i>Zea mays</i> L.	Somasundaram S, et al.	2009	10.1626/pps .12.443
Fate of nitrogen (1)		Nitrogen Cycling in an Ecological Farming System of Milk Vetch Culture - Pig-Raising - Biogas Fermentation - Rice Culture	Liu JR, et al.	2002	10.1626/pps .5.65
Fermentation (6)	Fermentation (2)	Cultivation of Sweet Sorghum ( <i>Sorghum bicolor</i> (L.) Moench) and Determination of its Harvest Time to Make Use as the Raw Material for Fermentation, Practiced during Rainy Season in Dry Land of Indonesia	Tsuchihashi N, et al.	2004	10.1626/pps .7.442
		Effect of Ethanol on the Expression of Two Fructokinases in Rice Seedlings	Guglielmine tti L, et al.	2014	10.1626/pps .17.305
	Ethanol fermentation (4)	Submergence Tolerance and Ethanol fermentation in Rice Coleoptiles	Kato-Noguchi H.	2001	10.1626/pps .4.62
		Hypoxic Induction of Anoxia Tolerance in Rice Coleoptiles	Kato-Noguchi H.	2002	10.1626/pps .5.211
		Submergence Acclimation to Low-Temperature Stress in Rice Roots	Kato-Noguchi H.	2007	10.1626/pps .10.297
		Anoxia Tolerance and Sugar Level in Roots and Coleoptiles of Aerobically Germinated Rice	Kato-Noguchi H, et al.	2011	10.1626/pps .14.325
Fertility (8)	Fertility percentage (1)	Cleistogamy Decreases the Effect of High Temperature Stress at Flowering in Rice	Koike S, et al.	2015	10.1626/pps .18.111
	Fertilization (1)	Pod Setting Pattern during and after Low Temperature and the Mechanism of Cold-Weather Tolerance at the Flowering Stage in Soybeans	Kurosaki H, et al.	2003	10.1626/pps .6.247
	Floret fertility at high temperatures (1)	Comparison between Anthers of two Rice ( <i>Oryza sativa</i> L.) Cultivars with Tolerance to High Temperatures at Flowering or Susceptibility	Matsui T, et al.	2001	10.1626/pps .4.36
	Pollen fertility (1)	Water Status of Flower Buds and Leaves as Affected by High Temperature in Heat-Tolerant and Heat-Sensitive Cultivars of Snap Bean ( <i>Phaseolus vulgaris</i> L.)	Tsakaguchi T, et al.	2003	10.1626/pps .6.24
	Spikelet fertility (3)	Agronomic Performance of F <sub>1</sub> Hybrids of Rice ( <i>Oryza sativa</i> L.) in Japonica-Indica Crosses: Heterosis for and relationship between grain yield and related characters	Murayama S, et al.	2002	10.1626/pps .5.203
		Variation in Spikelet-Related Traits of Rice Plants Regenerated from Mature Seed-Derived Callus Culture	Carsono N, et al.	2007	10.1626/pps .10.86
		Effects of the number of pollen grains on cold tolerance at the booting stage in rice lines with QTLs for cold tolerance	Fukushima A, et al.	2017	10.1080/13 43943X.20 16.1245103
	Unfertilized spikelet (1)	Convenient Estimation of Unfertilized Grains in Rice	Kobata T, et al.	2010	10.1626/pps .13.289
Fiber (1)	Cotton fiber (1)	MYB and HD-ZIP IV homologs related to trichome formation are involved in epidermal bladder cell development in the halophyte <i>Mesembryanthemum crystallinum</i> L.	Roern S, et al.	2017	10.1080/13 43943X.20 17.1279528
Filling (22)	Grain filling (10)	Dynamics of Abscisic Acid Levels during Grain-Filling in Rice: Comparisons between Superior and Inferior Spikelets	Tsakaguchi T, et al.	1999	10.1626/pps .2.223
		Effects of Dry Matter Production, Translocation of Nonstructural Carbohydrates and Nitrogen Application on Grain Filling in Rice Cultivar Takanari, a Cultivar Bearing a Large Number of Spikelets	Nagata K, et al.	2001	10.1626/pps .4.173
		Historical Changes in Grain Yield and Photosynthetic Rate of Rice Cultivars Released in the 20th Century in Tohoku Region	Zheng W-H, et al.	2004	10.1626/pps .7.36
		Effect of CO <sub>2</sub> Enrichment on the Translocation and Partitioning of Carbon at the Early Grain-filling Stage in Rice ( <i>Oryza sativa</i> L.)	Sasaki H, et al.	2005	10.1626/pps .8.8

Filling (continued)	Grain filling (continued)	Activities of Enzymes for Sucrose-Starch Conversion in Developing Endosperm of Rice and Their Association with Grain Filling in Extra-Heavy Panicle Types	Kato T, et al.	2007	10.1626/pps .10.442	
		Effects of Assimilate Supply and High Temperature during Grain-Filling Period on the Occurrence of Various Types of Chalky Kernels in Rice Plants ( <i>Oryza sativa</i> L.)	Tsukaguchi T, et al.	2008	10.1626/pps .11.203	
		Contribution of Nitrogen Absorbed during Ripening Period to Grain Filling in a High-Yielding Rice Variety, Takanari	Ida M, et al.	2009	10.1626/pps .12.176	
		Variation and Association of the Traits Related to Grain Filling in Several Extra-Heavy Panicle Type Rice under Different Environments	Kato T.	2010	10.1626/pps .13.185	
		Varietal Difference in the Occurrence of Milky White Kernels in Response to Assimilate Supply in Rice Plants ( <i>Oryza sativa</i> L.)	Tsukaguchi T, et al.	2011	10.1626/pps .14.111	
		Molecular physiological aspects of chalking mechanism in rice grains under high-temperature stress	Mitsui T, et al.	2016	10.1080/13 43943X.20 15.1128112	
	Grain fill (1)	Adaptation of rice ( <i>Oryza sativa</i> L.) genotypes in the rainfed lowlands of Lao PDR	Sengxua P, et al.	2017	10.1080/13 43943X.20 17.1403290	
	Grain filling duration (1)	Genetic and Environmental Variations and Associations of the Characters Related to the Grain-Filling Process in Rice Cultivars	Kato T.	1999	10.1626/pps .2.32	
	Grain filling mechanisms (1)	Grain Filling Mechanisms in Two Wheat Cultivars, Haruyutaka and Daichinominori, grown in Western Japan and in Hokkaido	Hossain MA, et al.	2010	10.1626/pps .13.156	
	Grain filling period (1)	Stay-Green in Rice ( <i>Oryza sativa</i> L.) of Drought-Prone Areas in Desiccated Soils	Hoang TB, et al.	2009	10.1626/pps .12.397	
	Grain filling rate (1)	Genetic and Environmental Variations and Associations of the Characters Related to the Grain-Filling Process in Rice Cultivars	Kato T.	1999	10.1626/pps .2.32	
	Initial seed filling (1)	Correlation between Yielding Ability and Dry Matter Productivity during Initial Seed Filling Stage in Various Soybean Genotypes	Shiraiwa T, et al.	2004	10.1626/pps .7.138	
	Poor grain filling (1)	Physiological Mechanisms of Poor Grain Growth in Abnormally Early Ripening Wheat Grown in West Japan	Hossain MA, et al.	2009	10.1626/pps .12.278	
	Rate of grain filling (1)	Variation and Association of the Traits Related to Grain Filling in Several Extra-Heavy Panicle Type Rice under Different Environments	Kato T.	2010	10.1626/pps .13.185	
	Fixation (28)	Biological nitrogen fixation (2)	Effect of Fertilizer and Fixed Nitrogen on the Water Use Efficiency of Genge ( <i>Astragalus sinicus</i> L.)	Sumi A, et al.	2015	10.1626/pps .18.104
			Yield of sugarcane varieties and their sugar quality grown in different soil types and inoculated with a diazotrophic bacteria consortium	Schultz N, et al.	2017	10.1080/13 43943X.20 17.1374869
CO <sub>2</sub> fixation (3)		Gas Exchange Analysis for Estimating Net CO <sub>2</sub> Fixation Capacity of Mangrove ( <i>Rhizophora stylosa</i> ) Forest in the Mouth of River Fukido, Ishigaki Island, Japan	Okimoto Y, et al.	2007	10.1626/pps .10.303	
		Effects of Growth under Elevated CO <sub>2</sub> on the Capacity of Photosynthesis in Two Radish Cultivars Differing in Capacity of Storage Root	Usuda H.	2004	10.1626/pps .7.377	
		Evaluation of the Effect of Photosynthesis on Biomass Production with Simultaneous Analysis of Growth and Continuous Monitoring of CO <sub>2</sub> Exchange in the Whole Plants of Radish, cv Kosena under Ambient and Elevated CO <sub>2</sub>	Usuda H.	2004	10.1626/pps .7.386	



Fixation (continued)	Nitrogen fixation (21)	Effects of Soil Amendment with Crab Shell on the Growth and Nodulation of Soybean Plants ( <i>Glycine max</i> Merr.)	Muhammad Ah, et al.	1998	10.1626/pps .1.119
		Nitrate-Induced Inhibition of Root Nodule Formation and Nitrogenase Activity in the Peanut ( <i>Arachis hypogaea</i> L.)	Daimon H, et al.	1999	10.1626/pps .2.81
		Grain Yield and Related Physiological Characteristics of Rice Plants ( <i>Oryza sativa</i> L.) Inoculated with Free-Living Rhizobacteria	Alam MS, et al.	2001	10.1626/pps .4.126
		Rice Cultivar Variation in the Growth Response to Inoculation of Free-Living Rhizo bacteria	Alam MS, et al.	2003	10.1626/pps .6.50
		Characteristics of Growth and Yield Formation the Improved Genotype of Supernodulating Soybean ( <i>Glycine max</i> L. Merr.)	Takahashi M, et al.	2003	10.1626/pps .6.112
		Characterization of Vegetative Growth of a Supernodulating Soybean Genotype, Sakukei 4	Matsunami T, et al.	2004	10.1626/pps .7.165
		Characteristics of Nodulation and Nitrogen Fixation in the Improved Supernodulating Soybean ( <i>Glycine max</i> L. Merr.) Cultivar 'Sakukei 4'	Takahashi M, et al.	2005	10.1626/pps .8.405
		Plant Nitrogen Levels and Photosynthesis in the Supernodulating Soybean ( <i>Glycine max</i> L. Merr.) Cultivar 'Sakukei 4'	Takahashi M, et al.	2005	10.1626/pps .8.412
		Difference in $\delta^{15}\text{N}$ Signatures among Plant Parts of Perennial Species Subjected to Drought Stress with Special Reference to the Contribution of Symbiotic $\text{N}_2$ -fixation to Plant N	Khadka J, et al.	2006	10.1626/pps .9.115
		Nitrogen Fixation and Seed Yield in Soybean under Moderate High-Temperature Stress	Shiraiwa T, et al.	2006	10.1626/pps .9.165
		Alteration in Intra-plant Distribution of $\delta^{15}\text{N}$ in Response to Shading in Legumes	Khadka J, et al.	2006	10.1626/pps .9.219
		Tricalcium Phosphate Solubilization by Root Nodule Bacteria of <i>Sesbania cannabina</i> and <i>Crotalaria juncea</i>	Daimon H, et al.	2006	10.1626/pps .9.388
		Effects of High Ground-Water Level on the Growth and Yield of Supernodulating Soybean Cultivar, Sakukei 4. II. Effects of High Ground-Water Level on Nitrogen Absorption	Hamaya K, et al.	2007	10.1626/pps .10.478
		Role of Belowground Parts of Green Manure Legumes, <i>Crotalaria spectabilis</i> and <i>Sesbania rostrata</i> , in N Uptake by the Succeeding Tendergreen Mustard Plant	Choi B, et al.	2008	10.1626/pps .11.116
		Effects of Waterlogging on Nitrogen Fixation and Photosynthesis in Supernodulating Soybean Cultivar Kanto 100	Jung G, et al.	2008	10.1626/pps .11.291
		Effect of $\text{CO}_2$ Concentration, Temperature and N Fertilization on Biomass Production of Soybean Genotypes Differing in N Fixation Capacity	Matsunami T, et al.	2009	10.1626/pps .12.156
		Nitrogen Utilization in the Supernodulating Soybean Variety "Sakukei 4" and Its Parental Varieties, "Enrei" and "Tamahomare"	Nakamura T, et al.	2010	10.1626/pps .13.123
		Control of Soybean Nodule Formation by a Crack Fertilization Technique	Iijima M, et al.	2011	10.1626/pps .14.202
		Soybean Cultivation on Desert Sand Using Drip Irrigation with Mulch	Miyauchi Y, et al.	2012	10.1626/pps .15.310
		Alternative Experimental Method Using a FRP Pot for Evaluating Wet Damage in Soybean and Morning Glory Grown under Excess Soil Water Conditions	Asakura S, et al.	2013	10.1626/pps .16.280
	Evaluation of Mixed Cropping of Oat and Hairy Vetch as Green Manure for Succeeding Corn Production	Tarui A, et al.	2013	10.1626/pps .16.383	
Nitrogen fixing activity (1)	Nitrogen-Fixing Activity of Root Nodules in Relation to Their Size in Peanut ( <i>Arachis hypogaea</i> L.)	Tajima R, et al.	2007	10.1626/pps .10.423	
Nodule nitrogen fixation (1)	Effects of Water Table Control by Farm-Oriented Enhancing Aquatic System on Photosynthesis, Nodule Nitrogen Fixation, and Yield of Soybeans	Shimada S, et al.	2012	10.1626/pps .15.132	
Floral organ (1)	Differentiation and Development of Floral Organs at Each Node and Raceme Order in an Indeterminate Type of Soybean	Saitoh K, et al.	1999	10.1626/pps .2.47	
Florescence (1)	Physiological response of henna ( <i>Lawsonia inermis</i> L.) to salicylic acid and salinity	Farahbakhsh H, et al.	2017	10.1080/1343943X.2017.1299581	

Floret (4)	Floret (2)	Initiation and Development of Spikelets and Florets in Wheat as Influenced by Shading and Nitrogen Supply at the Spikelet Phase	Toyota M, et al.	2001	10.1626/pps.4.283
		Size and Activity of Shoot Apical Meristems as Determinants of Floret Number in Rice Panicles	Mu C, et al.	2005	10.1626/pps.8.51
	Floret opening (2)	Rapid Swelling of Pollen Grains in Response to Floret Opening Unfolds Anther Locules in Rice ( <i>Oryza sativa</i> L.)	Matsui T, et al.	1999	10.1626/pps.2.196
		Gas Exchange through the Slit between the Lemma and the Palea in the Rice ( <i>Oryza sativa</i> L.) Floret before Anthesis	Matsui T, et al.	2003	10.1626/pps.6.262
Flower (7)	Flower (1)	Transforming Subsistence Cropping in Asia	Rerkasem K, et al.	2005	10.1626/pps.8.275
	Flower buds (1)	Water Status of Flower Buds and Leaves as Affected by High Temperature in Heat-Tolerant and Heat-Sensitive Cultivars of Snap Bean ( <i>Phaseolus vulgaris</i> L.)	Tsukaguchi T, et al.	2003	10.1626/pps.6.24
	Flower cluster (1)	Influence of Day Length on Stem Growth, Flowering, Morphology of Flower Clusters, and Seed-Set in Buckwheat ( <i>Fagopyrum esculentum</i> Moench)	Michiyama H, et al.	2005	10.1626/pps.8.44
	Flower opening in early morning (2)	Effects of Temperature, Solar Radiation, and Vapor-Pressure Deficit on Flower Opening Time in Rice	Kobayasi K, et al.	2010	10.1626/pps.13.21
		Sterility and Poor Pollination Due to Early Flower Opening Induced by Methyl Jasmonate	Kobayasi K, et al.	2010	10.1626/pps.13.29
	Flower opening time (2)	Effects of Temperature, Solar Radiation, and Vapor-Pressure Deficit on Flower Opening Time in Rice	Kobayasi K, et al.	2010	10.1626/pps.13.21
		Sterility and Poor Pollination Due to Early Flower Opening Induced by Methyl Jasmonate	Kobayasi K, et al.	2010	10.1626/pps.13.29
	Flowering (15)	Flowering (6)	Influences of High Night Temperature on Flowering and Pod Setting in Soybean	Zen SH, et al.	2002
Effects of Carbon Dioxide Enrichment during Different Growth Periods on Flowering, Pod Set and Seed Yield in Soybean			Nakamoto H, et al.	2004	10.1626/pps.7.11
Influence of Day Length on Stem Growth, Flowering, Morphology of Flower Clusters, and Seed-Set in Buckwheat ( <i>Fagopyrum esculentum</i> Moench)			Michiyama H, et al.	2005	10.1626/pps.8.44
Correlation between Viability of Pollination and Length of Basal Dehiscence of the Theca in Rice under a Hot-and-Humid Condition			Matsui T, et al.	2005	10.1626/pps.8.109
Effects of Day Length and Air Temperature on Stem Growth and Flowering in Sesame			Kumazaki T, et al.	2008	10.1626/pps.11.178
Adaptation of rice ( <i>Oryza sativa</i> L.) genotypes in the rainfed lowlands of Lao PDR			Sengxua P, et al.	2017	10.1080/1343943X.2017.1403290
Flowering date (1)		Variations in Flowering Date, Shoot Growth and Contents of Choleric Substances in Capitulum in <i>Artemisia capillaris</i> Collected from Various Locations in Japan	Minami M, et al.	1999	10.1626/pps.2.241
Flowering habit (2)		Differences in Flowering Habit between Determinate and Indeterminate Types of Soybean	Kuroda T, et al.	1998	10.1626/pps.1.18
		Characteristics of Flowering and Pod Set in Wild and Cultivated Types of Soybean	Saitoh K, et al.	2004	10.1626/pps.7.172
Flowering period (1)		The Difference in Sterility due to High Temperatures during the Flowering Period among Japonica-Rice Varieties	Matsui T, et al.	2001	10.1626/pps.4.90
Flowering stage (2)		Effects of Low Temperature and Shading during Flowering on the Yield Components in Soybeans	Kurosaki H, et al.	2003	10.1626/pps.6.17
		Pod Setting Pattern during and after Low Temperature and the Mechanism of Cold-Weather Tolerance at the Flowering Stage in Soybeans	Kurosaki H, et al.	2003	10.1626/pps.6.247
Flowering time (2)		Accurate Evaluation of Photoperiodic Sensitivity and Genetic Diversity in Common Buckwheat under a Controlled Environment	Hara T, et al.	2013	10.1626/pps.16.247
		Stability Verification of the Effects of Stem Determination and Earliness of Flowering on Green Stem Disorder of Soybean against Genetic Background and Environment	Fujii K, et al.	2015	10.1626/pps.18.166
Early-morning flowering (1)		The Early-Morning Flowering Trait of Rice Reduces Spikelet Sterility under Windy and Elevated Temperature Conditions at Anthesis	Ishimaru T, et al.	2012	10.1626/pps.15.19

Foraging (1)	Resource foraging (1)	Root Morphological Plasticity for Heterogeneous Phosphorus Supply in <i>Zea mays</i> L.	Yano K, et al.	2005	10.1626/pps.8.427
Formation (12)	Anticlinal wall formation (1)	Cellularization of the Free Nuclear Endosperm in Rice Caryopsis Revealed by Light and Electron Microscopy	Suzuki K, et al.	2000	10.1626/pps.3.446
	Callus formation (1)	Efficient Plant Regeneration in Garlic through Somatic Embryogenesis from Root Tip Explants	Haque MS, et al.	1998	10.1626/pps.1.216
	Root formation (2)	Genotypic Variation in Biomass Production at the Early Vegetative Stage among Rice Cultivars Subjected to Deficient Soil Moisture Regimes and Its Association with Water Uptake Capacity	Matsunami M, et al.	2012	10.1626/pps.15.82
		Genotypic Variation in Osmotic Stress Tolerance Among Rice Cultivars and Its Association with L-Type Lateral Root Development	Toyofuku K, et al.	2015	10.1626/pps.18.246
	Seed formation (1)	Cellularization of the Free Nuclear Endosperm in Rice Caryopsis Revealed by Light and Electron Microscopy	Suzuki K, et al.	2000	10.1626/pps.3.446
	Shoot bud formation (1)	Anatomical Changes during <i>in Vitro</i> Direct Formation of Shoot Bud from Root Tips in Garlic ( <i>Allium sativum</i> L.)	Haque MS, et al.	1999	10.1626/pps.2.146
	Sink formation (1)	Roles of Auxin and Cytokinin in Soybean Pod Setting	Nonokawa K, et al.	2007	10.1626/pps.10.199
	Spikelet formation (1)	Analysis of Spike Development of Three Spring Wheat Genotypes under Various Cultural Conditions	Itoh H, et al.	1998	10.1626/pps.1.258
	Storage root formation (1)	Stimulation of Root Thickening and Inhibition of Bolting by Jasmonic Acid in Beet Plants	Koda Y, et al.	2001	10.1626/pps.4.131
	Trunk formation (1)	Growth Behavior of Sago Palm ( <i>Metroxylon sagu</i> Rottb.) from Transplantation to Trunk Formation	Nabeya K, et al.	2015	10.1626/pps.18.209
	Tuber formation (1)	Effects of Planting Date on the Growth and Yield of Two Potato Cultivars Grown from Microtubers and Conventional Seed Tubers	Kawakami J, et al.	2005	10.1626/pps.8.74
	Tuberous root formation (1)	Regulation of Expression of D3-type Cyclins and ADP-Glucose Pyrophosphorylase Genes by Sugar, Cytokinin and ABA in Sweet Potato ( <i>Ipomoea batatas</i> Lam.)	Nagata T, et al.	2009	10.1626/pps.12.434