

18 New Nothogenera and 8 New Combinations in the Grass Family Poaceae

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The grass family Poaceae includes major crop genera like *Triticum* (wheat), *Hordeum* (barley) and *Secale* (rye) in the subfamily Pooideae, and *Saccharum* (sugarcane), *Sorghum* (sorghum) and *Zea* (maize) in the subfamily Panicoideae. Species from this family have been used for extensive hybridization experiments. No less than 59 valid nothogenera are listed in IPNI, yet dozens of intergeneric hybrids remain nameless.¹ Notho- generic names are proposed here for eighteen intergeneric hybrids, including one tetrageneric hybrid, ten trigeneric hybrids and seven bigeneric hybrids. In addition, seven new combinations for nothospecies are proposed.



Wheat

David Monniaux
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Barley

Cliff
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Rye

LSDSL
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¹ Note that the widely used \times *Triticale*, an invalid younger synonym of \times *Triticosecale*, is not listed.

Valid Nothogenera in Poaceae

NOTHOGENUS	PARENT 1	PARENT 2	PARENT 3
× <i>Achnella</i>	<i>Achnatherum</i>	<i>Nassella</i>	
× <i>Aegilosecale</i>	<i>Aegilops</i>	<i>Secale</i>	
× <i>Aegilotriticum</i>	<i>Aegilops</i>	<i>Triticum</i>	
× <i>Agrocalamagrostis</i>	<i>Agrostis</i>	<i>Calamagrostis</i>	
× <i>Agroëlymus</i>	<i>Agropyron</i>	<i>Elymus</i>	
× <i>Agrohordeum</i>	<i>Agropyron</i>	<i>Hordeum</i>	
× <i>Agropogon</i>	<i>Agrostis</i>	<i>Polypogon</i>	
× <i>Agrositanion</i>	<i>Acropyron</i>	<i>Sitanion</i>	
× <i>Agrotrigia</i>	<i>Agropyron</i>	<i>Elytrigia</i>	
× <i>Agrotrisecale</i>	<i>Agropyron</i>	<i>Secale</i>	<i>Triticum</i>
× <i>Agrotriticum</i>	<i>Agropyron</i>	<i>Triticum</i>	
× <i>Ammocalamagrostis</i>	<i>Ammophila</i>	<i>Calamacrostis</i>	
× <i>Arctodupontia</i>	<i>Arctophila</i>	<i>Dupontia</i>	
× <i>Bromofestuca</i>	<i>Bromus</i>	<i>Festuca</i>	
× <i>Calamophila</i>	<i>Ammophila</i>	<i>Calamagrostis</i>	
× <i>Cynochloris</i>	<i>Chloris</i>	<i>Cynodon</i>	
× <i>Danthosieglingia</i>	<i>Danthonia</i>	<i>Sieglingia</i>	
× <i>Dupoa</i>	<i>Dupontia</i>	<i>Poa</i>	
× <i>Dupontopoa</i>	<i>Arctopoa</i>	<i>Dupontia</i>	
× <i>Elyleymus</i>	<i>Elymus</i>	<i>Leymus</i>	
× <i>Elymopyron</i>	<i>Agropyron</i>	<i>Elymus</i>	
× <i>Elymordeum</i>	<i>Elymus</i>	<i>Hordeum</i>	

× <i>Elymostachys</i>	<i>Elymus</i>	<i>Psathyrostachys</i>	
× <i>Elymotrigia</i>	<i>Elymus</i>	<i>Elytrigia</i>	
× <i>Elymotriticum</i>	<i>Elymus</i>	<i>Triticum</i>	
× <i>Elysitanion</i>	<i>Elymus</i>	<i>Sitanion</i>	
× <i>Elytesion</i>	<i>Critesion</i>	<i>Elymus</i>	
× <i>Euchlaeza</i>	<i>Euchlaena</i>	<i>Zea</i>	
× <i>Festulolium</i>	<i>Festuca</i>	<i>Lolium</i>	
× <i>Festulpia</i>	<i>Festuca</i>	<i>Vulpia</i>	
× <i>Gigantocalamus</i>	<i>Dendrocalamus</i>	<i>Gigantochloa</i>	
× <i>Hainardiopholis</i>	<i>Hainardia</i>	<i>Parapholis</i>	
× <i>Hordale</i>	<i>Hordeum</i>	<i>Secale</i>	
× <i>Horderoegneria</i>	<i>Hordeum</i>	<i>Roegneria</i>	
× <i>Leydeum</i>	<i>Hordeum</i>	<i>Leymus</i>	
× <i>Leymopyron</i>	<i>Agropyron</i>	<i>Leymus</i>	
× <i>Leymostachys</i>	<i>Leymus</i>	<i>Psathyrostachys</i>	
× <i>Leymotrigia</i>	<i>Elytrigia</i>	<i>Leymus</i>	
× <i>Leymotrix</i>	<i>Hystrix</i>	<i>Leymus</i>	
× <i>Leytesion</i>	<i>Critesion</i>	<i>Leymus</i>	
× <i>Oryticum</i>	<i>Oryza</i>	<i>Triticum</i>	
× <i>Pascoleymus</i>	<i>Leymus</i>	<i>Pascopyrum</i>	
× <i>Phyllosasa</i>	<i>Phyllostachys</i>	<i>Sasa</i>	
× <i>Pseudelymus</i>	<i>Elymus</i>	<i>Pseudoroegneria</i>	
× <i>Pucciphippsia</i>	<i>Phippsia</i>	<i>Puccinellia</i>	
× <i>Sasinaria</i>	<i>Arundinaria</i>	<i>Sasa</i>	
× <i>Schedolium</i>	<i>Lolium</i>	<i>Schedonorus</i>	

× <i>Sitordeum</i>	<i>Hordeum</i>	<i>Sitanion</i>	
× <i>Stiporyzopsis</i>	<i>Oryzopsis</i>	<i>Stipa</i>	
× <i>Terrelymus</i>	<i>Elymus</i>	<i>Terrellia</i>	
× <i>Thinoëlymus</i>	<i>Elymus</i>	<i>Thinopyrum</i>	
× <i>Thyrsocalamus</i>	<i>Dendrocalamus</i>	<i>Thyrsostachys</i>	
× <i>Trisetokoeleria</i>	<i>Koeleria</i>	<i>Trisetum</i>	
× <i>Trisetopsotrichon</i>	<i>Heliotrichon</i>	<i>Trisetopsis</i>	
× <i>Triticosecale</i>	<i>Secale</i>	<i>Triticum</i>	
× <i>Tritihaynaldia</i>	<i>Haynaldia</i>	<i>Triticum</i>	
× <i>Tritipyrum</i>	<i>Thinopyrum</i>	<i>Triticum</i>	
× <i>Trititrigia</i>	<i>Elytrigia</i>	<i>Triticum</i>	
× <i>Tritordeum</i>	<i>Hordeum</i>	<i>Triticum</i>	



Sugarcane

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Sorghum

Gyrostat
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Maize

Löwe 48
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Tetrageneric

×**HERMANARA**

M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE *Avena* L. × *Elymus* L. × *Secale* L. × *Triticum* L.

BASED ON *Avena fatua* L. × *Elymus hispidus* (Opiz) Melderis [as *Thinopyrum intermedium* (Host) Barkworth & D.R.Dewey] × *Secale cereale* L. × *Triticum aestivum* L. = common wild oat × intermediate wheatgrass × rye × common wheat

REFERENCE Shunxue T. et al. (1997). Identification of Introgressed Segments Conferring Disease Resistance in a Tetrageneric Hybrid of Triticum, Secale, Thinopyrum, and Avena. Genome 40: 99-103.

Trigeneric

×**ELSJEARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Aegilops* L.** × ***Agropyron* Gaertn.** × ***Hordeum* L.**

BASED ON ***Aegilops tauschii* Coss.** [as *Triticum tauschii* (Coss.) Schmalh.] × ***Agropyron cristatum* (L.) Gaertn.** × ***Hordeum chilense* Roem. & Schult.** = rough-spiked hardgrass × crested wheatgrass × *H. chilense*

REFERENCE Martín A., Rubiales D. & Cabrera A. (1998). Meiotic pairing in a trigeneric hybrid *Triticum tauschii*-*Agropyron cristatum*-*Hordeum chilense*. *Hereditas* 129: 113-118.

×**HANSARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Dasypyrum* (Coss. & Durieu) T.Durand** × ***Psathyrostachys* Nevski ex Roshev.** × ***Triticum* L.**

BASED ON *Dasypyrum* sp. × *Psathyrostachys* sp. × *Triticum* sp. = mosquito grass sp. × Russian wildrye sp. × wheat sp.

REFERENCE Li X.-F. (2006). Cytogenetic Study of a Trigeneric (Triticale × Tritileymus) Hybrid. *Euphytica* 150: 117-122.

×**JEANNEKEARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Aegilops* L.** × ***Hordeum* L.** × ***Secale* L.**

BASED ON *Aegilops* sp. × *Hordeum* sp. × *Secale* sp. = goatgrass sp. × barley sp. × rye sp.

REFERENCE Li X.-F. (2006). Cytogenetic Study of a Trigeneric (Triticale × Tritileymus) Hybrid. *Euphytica* 150: 117–122.

×**LYNETTEARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Psathyrostachys*** Nevski & Nevski × ***Secale*** L. × ***Triticum*** L.

BASED ON (***Psathyrostachys huashanica*** Keng f. ex P.C.Kuo × ***Triticum aestivum*** L.) × (***Secale cereale*** L. × ***Triticum aestivum*** L.) = *P. huashanica* × common wheat × rye

REFERENCE Kang H. (2012). Production and cytogenetics of trigeneric hybrid involving Triticum, *Psathyrostachys* and *Secale*. *Genet. Resources Crop Evol.* 59(3): 445-453

Kang H. et al. (2016). Divergent Development of Hexaploid Triticale by a Wheat - Rye - *Psathyrostachys huashanica* Trigeneric Hybrid Method. *PLoS ONE* 11(5)

×**MELARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Dasypyrum*** (Coss. & Durieu) Maire × ***Secale*** L. × ***Triticum*** L.

BASED ON ***Dasypyrum villosum*** (L.) Borbás (as *Haynaldia villosa* (L.) Schur) × ***Secale cereale*** L. × ***Triticum durum*** Desf. = *D. villosum* × rye × durum wheat

REFERENCE Jiang J., Chen P. & Lio D. (1989). Morphology and cytogenetics of *Triticum durum*-*Haynaldia*

villosa- *Secale cereale* trigeneric hybrid and its derivatives. J. Nanjing Agric. Univ. 2: 1-5.

×**MERELARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE *Elymus* L. × *Psathyrostachys* Nevski & Nevski × *Triticum* L.

BASED ON *Elymus hispidus* (Opiz) Melderis [as *Thinopyrum intermedium* (Host) Barkworth & D.R.Dewey] × *Psathyrostachys huashanica* Keng f. ex P.C.Kuo × *Triticum aestivum* L. = intermediate wheatgrass × *P. huascanica* × common wheat

REFERENCE Kang H. Method for quickly preparing wheat-*thinopyrum-intermedium* translocated chromosome. Patent CN103270942A, 14 May 2013.

×**MUNROARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE *Aegilops* L. × *Secale* L. × *Triticum* L.

BASED ON (*Aegilops triuncialis* L. [as *Aegilops squarrosa* L.] × *Secale cereale* L. × *Triticum boeoticum* Boiss. [as *Triticum aegilopoides* (Link) Balansa ex Körn.]) = barbed goatgrass × rye × einkorn wheat

(*Aegilops ventricosa* Tausch × *Triticum boeoticum* Boiss. [as *Triticum aegilopoides* (Link) Balansa ex Körn.]) × *Secale cereale* L. = *A. ventricosa* × einkorn wheat × rye

(*Aegilops ventricosa* Tausch × *Triticum boeoticum* Boiss. [as *Triticum aegilopoides* (Link) Balansa ex Körn.]) × *Secale montanum* Guss. = *A. ventricosa* × einkorn wheat × wild perennial rye

(*Aegilops ventricosa* Tausch × *Triticum monococcum* L.) × *Secale cereale* L. = *A. ventricosa* × einkorn wheat × rye

(*Aegilops ventricosa* Tausch × *Triticum monococcum* L.) × *Secale montanum* Guss. = *A. ventricosa* × einkorn wheat × wild perennial rye

(*Aegilops ventricosa* Tausch × *Triticum dicoccon* (Schrank) Schübl. [as *Triticum dicoccum*]) × *Secale cereale* L. = *A. ventricosa* × emmer wheat × rye

(*Aegilops ventricosa* Tausch × *Triticum dicoccon* (Schrank) Schübl. [as *Triticum dicoccum*]) × *Secale montanum* Guss. = *A. ventricosa* × emmer wheat × wild perennial rye

(*Aegilops triuncialis* L. [as *Aegilops squarrosa* L.] × *Triticum durum* Desf.) × *Secale cereale* L. = barbed goatgrass × durum wheat × rye

(*Aegilops triuncialis* L. [as *Aegilops squarrosa* L.] × *Triticum durum* Desf.) × *Secale montanum* Guss. = barbed goatgrass × durum wheat × wild perennial rye

(*Aegilops ventricosa* Tausch × *Triticum dicoccon* (Schrank) Schübl. [as *Triticum dicoccum*]) × *Secale cereale* L. = *A. ventricosa* × emmer wheat × rye

REFERENCE Siddiqui K. (1971). The Synthesis of Trigeneric *Aegilops* × *Triticum* × *Secale* Hybrids. *Hereditas* 69: 263-272.

×**ODINARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Leymus*** Hochst. × ***Secale*** L. × ***Triticum*** L.

BASED ON (***Triticum aestivum*** L. × ***Secale cereale*** L.) × (***Triticum aestivum*** L. × ***Leymus mollis*** (Trin.) Pilg.) = common wheat × rye × American dune grass

REFERENCE Li X.-F. (2006). Cytogenetic Study of a Trigeneric (*Triticale* × *Tritileymus*) Hybrid. *Euphytica* 150: 117-122.

×**PAMELARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Hordeum*** L. × ***Secale*** L. × ***Triticum*** L.

BASED ON (***Hordeum vulgare*** L. × ***Triticum aestivum*** L.) × ***Secale cereale*** L. = barley × common wheat × rye

REFERENCE Fedak G. & Armstrong K. (1981). Cytogenetics of the Trigeneric Hybrid, (*Hordeum vulgare* × *Triticum aestivum*) × *Secale cereale*. *Theor. Appl. Genet.* 60(4): 215-219.

Fedak G. & Armstrong K. (1980). Production of Trigeneric (Barley × Wheat) × Rye Hybrids. *Theor. Appl. Genet.* 56: 221-224.

× **VITARA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE ***Elymus*** L. × ***Leymus*** Hochst. × ***Triticum*** L.

BASED ON *Elymus* sp. [as *Thinopyrum* sp.] × *Leymus* sp. ×
Triticum sp.

REFERENCE Li X.-F. (2006). Cytogenetic Study of a Trigeneric
(*Triticale* × *Tritileymus*) Hybrid. *Euphytica* 150:
117–122.

Bigeneric

×**IMPARUM** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE *Imperata* Cirillo × *Saccharum* L.

BASED ON *Imperata* sp. × *Saccharum* sp. = satintail sp. × sugarcane

REFERENCE Gupta S., de Wet J. & Harlan J. 1978: Morphology of *Saccharum*-*Sorghum* Hybrid Derivatives. Amer. J. Bot. 65(9): 936-942.

×**MISCARUM** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE *Miscanthus* Andersson × *Saccharum* L.

BASED ON *Miscanthus* sp. × *Saccharum* sp. = silvergrass sp. × sugarcane

REFERENCE Gupta S., de Wet J. & Harlan J. 1978: Morphology of *Saccharum*-*Sorghum* Hybrid Derivatives. Amer. J. Bot. 65(9): 936-942.

×**SORGHARUM** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE *Saccharum* L. × *Sorghum* Moench.

BASED ON *Saccharum officinarum* L. × *Sorghum bicolor* (L.) Moench. = sugarcane × sorghum

REFERENCE Gupta S., de Wet J. & Harlan J. 1978: Morphology of *Saccharum*-*Sorghum* Hybrid Derivatives. Amer. J. Bot. 65(9): 936-942.

×**SORGHYZA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE **Oryza** L. × **Sorghum** Moench.

BASED ON **Oryza sativa** L. × **Sorghum bicolor** L. (as *Sorghum vulgare*) = Asian rice × sorghum

REFERENCE Tang J., Chen X. & Katsuyoshi S. (2002). Varietal Differences in Photosynthetic Characters and Chlorophyll Fluorescence Induction Kinetics Parameters among Intergeneric Progeny Derived from Oryza X Sorghum, Its Parents, and Hybrid Rice. J. Zhejiang Univ., Sci. Ed. 3(1): 113-117.

×**TRYS** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE **Psathyrostachys** Nevski × **Triticum** L.

BASED ON **Psathyrostachys juncea** (Fisch.) Nevski × **Triticum aestivum** L. = Russian wildrye × common wheat

REFERENCE Plourde A. et al. (1990). *A Novel Intergeneric hybrid in the Triticeae: Triticum aestivum x Psathyrostachys juncea*. Theor. Appl. Genet. 79: 45-48.

×**TRIZEA** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE **Zea** L. × **Tripsacum** L.

BASED ON **Zea mays** L. × (**Tripsacum dactyloides** (L.) L. × **Zea diploperennis** (Iltis, Doebley & R.Guzmán)) = maize × Eastern gamagrass × perennial teosinte

REFERENCE Plourde A. et al. (1990). A Novel Intergeneric hybrid in the Triticeae: *Triticum aestivum x*

Psathyrostachys juncea. Theor. Appl. Genet. 79:
45-48.

×**ZEARUM** M.VAN DER MEER **NOTHOGEN. NOV.**

PARENTAGE **Saccharum** L. × **Zea** L.

BASED ON **Saccharum officinarum** L. × **Zea mays** L. = sugar-
cane × maize

REFERENCE Gupta S., de Wet J. & Harlan J. 1978: Morphology
of Saccharum-Sorghum Hybrid Derivatives. Amer.
J. Bot. 65(9): 936-942.

Nothospecies

×*ELYLEYMUS ADAMSII*

(J.ROUSSEAU) M.VAN DER MEER **COMB. NOV.**

PARENTS *Elymus repens* (L.) Gould × *Leymus mollis* (Trin.)
Pilg. = couch grass × American dune grass

BASIONYM ×*Agroëlymus adamsii* J.Rousseau

×*ELYLEYMUS CAYOUILLEORUM*

(B.BOIVIN) M.VAN DER MEER **COMB. NOV.**

PARENTS *Elymus smithii* (Rydb.) Gould. × *Leymus innovatus* (Beal) Pilg. = Western wheatgrass × downy ryegrass

BASIONYM ×*Agroëlymus cayouillearum* B.Boivin

×*ELYLEYMUS ROSHEVITZII*

(TZVELEV) M.VAN DER MEER **COMB. NOV.**

PARENTS *Elymus repens* (L.) Gould × *Leymus paboanus* (Claus) Pilg. = couch grass × *L. paboanus*

BASIONYM ×*Leymotrigia roshevitzii* Tzvelev

×*ELYMOPYRON KOTOVII*

(TZVELEV) M.VAN DER MEER **COMB. NOV.**

PARENTS *Agropyron cristatum* (L.) Gaertn. × *Elymus repens* (L.) Gould = crested wheatgrass × couch grass

BASIONYM ×*Agrotrigia kotovii* Tzvelev

×**ELYMOTRITICUM CZICZNINII**

(TZVELEV) M.VAN DER MEER **COMB. NOV.**

PARENTS ***Elymus hispidus*** (Opiz) Melderis × ***Triticum aestivum*** L. = intermediate wheatgrass × common wheat

BASIONYM ×***Leymotrigia roshevitzii*** Isvelev

ELYMUS ×APICULATUS

(F.A.TSCHERNING) M.VAN DER MEER **COMB. NOV.**

PARENTS ***Elymus repens*** (L.) Gould × ***Elymus hispidus*** (Opiz) Melderis = couch grass × intermediate wheatgrass

BASIONYM ***Agropyron ×apiculatum*** F.A.Tscherning

ELYMUS ×BOWDENII

(B.BOIVIN) M.VAN DER MEER **COMB. NOV.**

PARENTS ***Elymus spicatus*** (Pursh) Gould × ***Elymus trachycaulus*** (Link) Gould ex Shinnars = bluebunch wheatgrass × slender wheatgrass

BASIONYM ***Agropyron ×bowdenii*** B.Boivin

HELICTROTRICHON ×TALAVERAE

(ROMERO ZARCO) M.VAN DER MEER **COMB. NOV.**

PARENTS ***Helictotrichon bromoides*** (Gouan) C.E.Hubb. × ***Helictotrichon gervaisii*** (Holub) Röser

BASIONYM ***Avenula ×talaverae*** Romero Zarco