

Breeding of Orchardgrass ‘Toyomidori’ and its Characteristics

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Summary

‘Toyomidori’, a new cultivar of orchardgrass (*Dactylis glomerata* L.), was developed by the Hokkaido National Agricultural Experiment Station (currently named, National Agricultural Research Center for Hokkaido Region) and was registered as Norin Synthetic No. 7 of orchardgrass by the Ministry of Agriculture, Forestry and Fisheries in 1994. It was registered in the OECD List of cultivars in 1995 and was registered in 1977 as a variety based on Japanese Law of Seeds and Seedlings. It has been recommended since 1994 by the Hokkaido Prefectural Government.

Source and Method of breeding :

‘Toyomidori’ was bred by a synthetic using 7 clones selected from 4 basic populations. Parental clones cl. 2036 and cl. 2075 were derived from P.I. 325306, a former USSR strain that was introduced as part of a program of UJNR (U.

S.-Japan Cooperative Program in Natural Resources); cl. 2359 was derived from a Japanese cultivar, ‘Okamidori’; cl. 3454, cl. 3456 and cl. 3462 were derived from a U.S. cultivar, ‘Nordstern’; cl. 3506 was derived from cl. 1711; a polycrossed progeny of cl. 396 was selected from U.S. cultivar, ‘Masshardy’. These clones showed good winter hardiness, disease resistance and vigor.

Characteristics :

‘Toyomidori’ is a very late maturing cultivar. In Hokkaido, ear emergence is eight days later than that of ‘Okamidori’ and three days earlier than that of ‘Hayking II’. ‘Toyomidori’ has better winter hardiness, cold tolerance and snow endurance and shows good recovery from winter injury in eastern Hokkaido. ‘Toyomidori’ is more resistant to the main leaf diseases, especially leaf streak, *Scolecotrichum graminis*, and scald, *Rhynchosporium orthosporum* than ‘Hayking II’ and ‘Okamidori’. ‘Toyomidori’ has a 6% higher dry matter yield than that of ‘Hayking II’ and the same as that of ‘Okamidori’ in Hokkaido. Yield at the first crop is higher than that of ‘Okamidori’. In a severe winter, ‘Toyomidori’ has a higher dry matter yield than that of ‘Okamidori’ in eastern Hokkaido. ‘Toyomidori’ has better persistence than ‘Hayking II’ and ‘Okamidori’. The grazing

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adaptability of 'Toyomidori' is nearly as good as that of 'Hayking II', and it also shows good mixture ability with legume crops. The dry matter ratio of 'Toyomidori' is similar to these of 'Hayking II' and 'Okamidori', but its dry matter digestibility in the first crop is slightly lower than these of 'Hyking II' and 'Okamidori'.

'Toyomidori' is an erect type and of plant bigger than 'Hayking II' in plant height, panicle length and leaf width. 'Toyomidori' has a 123% higher seed yield than 'Hyking II'.

'Toyomidori' is recommended for cultivation in northern Japan, mainly Hokkaido because of its good winter hardiness and good persistence. 'Toyomidori' can be used for hay-making, silage and grazing.

Breeder seed :

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