

# A New Approach to Conserve the Horticultural Cultivars of *Primula sieboldii* in University of Tsukuba<sup>©</sup>

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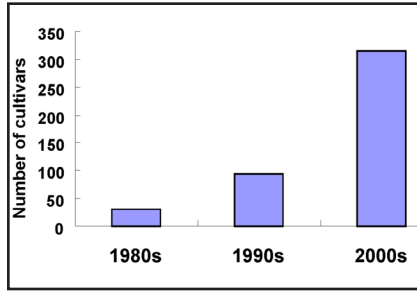
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## INTRODUCTION

Primrose (*Primula sieboldii* E. Morr.) has been a popular floricultural crop in Japan and we have enjoyed it from the Edo era, about 300 years ago. As primrose is a typical allogamous plant (reproducing by cross fertilization), it is not very difficult to breed new cultivars that have flower color and shape variations. In fact, there were a vast number of horticultural cultivars at the end of Edo era. It is believed that the horticultural primrose cultivar ‘Nankin Kozakura’ is one of the oldest that was developed about 300 years ago (Fig. 1). However, many cultivars have been lost through time because of events such as wars.



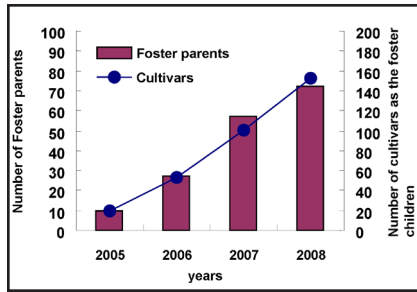
**Figure 1.** The oldest horticultural cultivar of primrose ‘Nankin Kozakura’ in Japan.



**Figure 2.** The change of the number of primrose cultivars conserved in University of Tsukuba.



**Figure 3.** The operation of bud division by non-profit organization staff and university students.



**Figure 4.** The increase of the “Foster parent” and “Foster children” to grow the primrose cultivars.

We have been conserving the genetic resources of the horticultural cultivars of this primrose since 1980 at the Agricultural and Forestry Research Center of University of Tsukuba. The number of cultivars in this center was 30 at the start of this activity. In 2004 we added 221 cultivars from Saitama prefecture; as the result, we now have 314 cultivars at this center (Fig. 2).

### **METHODS USED FOR PRIMROSE CULTIVATION**

Methods used for primrose propagation have three steps during the year. In February division of buds takes place, the root volume increases during May to July, and the dead leaves and weeds are removed from July to September. The bud division operation is used to increase the number of plants from mother stock plants. By increasing the root volume, we are able to keep continuous growth of the primrose (Fig. 3).

It is difficult to identify the primrose cultivars because some cultivars show similar petal color, flower, and plant shape. To decrease the risk of the contamination of seed from different cultivars, we use two labels in each pot — one on the top of pot soil and the other in the bottom of the pot. In addition, flower buds have been removed from plants to prevent fruit set.

### **FOSTER PARENT SYSTEM FOR GENETIC RESOURCES OF JAPANESE PRIMROSE**

University of Tsukuba has collaborated with non-profit organization group Tsukuba Urban Gardening (TUG) to conserve our primrose cultivar collection in the cooperation system called “Primrose Foster Parent.” In this system, we share our primrose cultivar collection with general citizens who become a “foster parent.” By sharing our genetic resources with foster parents, we decrease the risk of losing these important cultivars. In 2005, at the start of this foster parent system, 10 citizens and 20 cultivars were registered as the foster parents and “foster children,” respectively. The number of the foster parent and children has increased to 72 members and 153 cultivars by 2008 (Fig. 4). Foster parents take some practical training courses at our university on growing the primrose, and the foster parents report the condition of their primrose to our university staff several times a year.

### **JAPANESE PRIMROSE EXHIBITION**

Beginning in 2006, we have exhibited our collection in a primrose exhibition opened in Tsukuba Botanical Garden. In this exhibition, we could show our collections that were propagated by our university staff and foster parents.

Our primroses are exhibited in the classical exhibition style called Sakurasou Kadan that was developed in Edo era (Fig. 5).



**Figure 5.** Exhibition of primrose cultivars in Tsukuba Botanical Garden.

### **FUTURE ACTIVITIES AND SUBJECTS**

To keep our collection by the foster parent system, we will need to educate leadership members in foster parent group. In addition, the classification of unidentified cultivars will be continued.