

For Immediate Release

Hiroshima University High School
Sumitomo Forestry Co., Ltd.

A challenge by students from a Super Science High School
Returning *Ebayamazakura* Propagated Via Tissue Culture Back to
Hiroshima
Bringing Hiroshima's memories to the future and the world

Hiroshima University High School (Principal: Shinji Takemura) has been introducing students to various research themes since it was designated as a Super Science High School (SSH)* by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2003.

In October 2012, with technical support from Sumitomo Forestry Co., Ltd., a research team formed by then-students of the high school succeeded in the propagation of *Ebayamazakura*, a wild cherry tree designated by Hiroshima City as a natural monument, using tissue culture. The successfully propagated saplings were subsequently taken over by Sumitomo Forestry and planted at Sumitomo Forestry's Tsukuba Research Institute for nurturing.

The saplings have since grown, and were returned to Hiroshima today during a ceremonial tree-planting held at Hiroshima University High School.

As the high school's research theme after being designated as an SSH, the project aims to hand down *Ebayamazakura*, which is not just a rare tree but also survived the atomic bombing of Hiroshima, to future generations. The research team, made up of the high school's students, commenced propagation in 2007 using tissue culture, a biotechnology method.

Sumitomo Forestry took over the saplings which were jointly propagated with the students, and raised them inside greenhouses in 2014 to allow the saplings to adapt to outside conditions. In 2015, in order to foster further growth, the saplings were transplanted from greenhouses onto fields, and have now grown to heights of around 150 cm. As the saplings have grown satisfactorily, the owners—Hiroshima City, Hiroshima University High School, and Sumitomo Forestry—discussed the way ahead for the saplings, and it was decided to return the saplings to Hiroshima.

During this time's ceremonial tree-planting, two trees were planted in Hiroshima University High School, and six trees were planted in a park within the Eba area of Hiroshima City's Naka-ku.

In addition, this March, a tree-planting ceremony is being planned whereby trees will be donated to two prefectural schools in Fukushima Prefecture, which was devastated by the Great East Japan Earthquake. The two schools, Iwaki High School and Aizu-gakuho High School, are similarly designated as SSHs.



Ebayamazakura (Source: Hiroshima City Ebayama Museum of Meteorology)

To date, Sumitomo Forestry has been actively providing assistance for the reconstruction of areas devastated by the Great East Japan Earthquake, providing technological support based on biotechnology, such as through the “Kiseki no Ippon-matsu (Miracle Pine)” program and “Kibo no Shiba (Lawn of Hope)” Project; making use of the natural resource wood in building residential homes for disaster reconstruction; and promoting the use of wooden materials and timber for construction and interiors of medium-and-large-sized buildings such as educational and industrial facilities.

This time, the cherry trees do not just allow interaction between the three schools, but also help to bring smiles to the people of Hiroshima and Fukushima. It is hoped this will be an opportunity to think about furthering science to bring about even safer and more secure lifestyles in the future.

- * SSH: A program undertaken by MEXT aimed at developing future scientific talents for the global arena. The program was implemented in 2002 to designate and support high schools with an emphasis on science and math education in carrying out research and development. Hiroshima University High School was first designated in 2003, and was redesignated for a third term since 2012.

Additional Information

About *Ebayamazakura*

- Believed to be a mutant of *yamazakura* (wild cherry tree). The trunk splits into two from the roots, and the larger is about 14 m in height.
- Estimated tree age about 180 years.
- Ebayama was a small island in Hiroshima Bay, and had a guard house controlling seaward entry to the town surrounding Hiroshima Castle. During the Meiji era, the surrounding sea was reclaimed to join it with the Otagawa river delta. In August 1898, Hiroshima City established the Ebayama Park, and there is a high possibility the tree was planted in the park during this time or subsequently.
- A type of *yamazakura*, instead of the usual 5-petal flowers found in *yamazakura*, *Ebayamazakura* has flowers with five to 13 petals. The 16th generation Tōemon Sano, a famous landscape artist from Kyoto dedicated to preserving cherry trees, named this rare and unique cherry tree *Ebayamazakura*.

Sequence of tissue culture technique

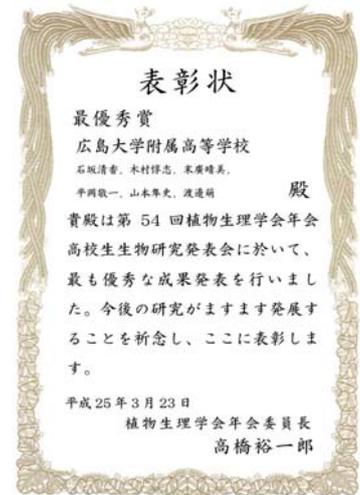
- 1) Obtain winter bud from *Ebayamazakura*. From the bud, extract only the foremost tissue (tip of stem).
- 2) Place the tip of the stem in a culture medium specially developed for *Ebayamazakura* to produce multiple shoots.
- 3) Transplant the multiple shoots to a solid medium (by solidifying the culture medium with a solid formulation) and let the shoots grow.
- 4) The multiple shoots are separated into individual shoots, and transplanted into artificial compost enriched with culture medium to promote the growth of roots. About two weeks later, the shoots are checked to see if roots have grown, signifying the regeneration of a complete plant body.
- 5) After about two weeks of chilling treatment, the saplings are moved to a climate-controlled room for nurturing (acclimatization).
- 6) Under guidance and advice from Sumitomo Forestry's Tsukuba Research Institute, the students derived observations and conclusions from the results.



Then-students carrying out the experiment

Awards received for the research (Hiroshima University High School)

- November 2012: Received an honorable mention at the 56th Hiroshima Science Awards.
- March 2013: Received the top award in the high school research presentation category during the 54th Annual Meeting of The Japanese Society of Plant Physiologists, which was held at Okayama.



Certificate from The Japanese Society of Plant Physiologists

(Top award for high school research presentation)

About Hiroshima University High School

Established in 1905 as the Hiroshima Higher Normal School Middle School, Hiroshima University High School celebrated its 110th year of founding in April 2015. As a school affiliated with a national university, it is tasked with educational research on Japan's secondary education, and is looked upon as an important national school and the model school for its region. Since 2003, it has been designated as a Super Science High School for three terms, and places strong emphasis on science and math education such as in its curriculum development.

For inquiries about tissue culture propagation techniques for trees:

Sumitomo Forestry's Forestry & Landscaping Research Center.

Internet URL: <http://sfc.jp/flrc/#center>

This center was established in April 2014 to consolidate expertise nurtured over the years by Sumitomo Forestry in its forestry and greening businesses, as well as initiatives undertaken for environmental conservation, and provide this expertise as a service to a whole range of stakeholders spanning government agencies, and private enterprises and organizations.

Experts in various fields discuss with stakeholders their needs, such as supporting forest management using the latest technologies, afforestation planning taking biodiversity into consideration, maintenance of gardens which are designated as important cultural properties, sapling propagation of famous and rare trees, and species identification through DNA.